The depressive symptom contagion between romantic partners explained by anxious attachment.

by

Preston Christopher Morgan

B.S., Weber State University, 2013
M.S., Kansas State University, 2017

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

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Department of Family Studies and Human Services
College of Health and Human Services

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Abstract

Depression can be contagious. This means that not only do depressed individuals experience depressive symptoms, but their romantic partners are also at risk of vicariously experiencing depressive symptoms. From an attachment lens, this vicarious transfer of depressive symptoms between romantic partners is expected to be exacerbated in the context of anxious attachment relationship instability, and verbal aggression. Using 571 German couples from the Panel Analysis on Intimate Relationships and Family Dynamics, I tested how these three relationship factors may moderate the expression of depressive symptom contagion between men's and women's depressive symptoms at two time points. Results revealed that, generally, one partner's depressive symptoms were associated with less depressive symptoms in the other partner—suggesting the opposite of a depressive symptom contagion. However, for both men and women, anxious attachment increased the risk of depressive symptoms contagion between partners cross-sectionally but not longitudinally. Together these results contribute to the literature by suggesting that the depressive symptom contagion did not occur among a general population of German couples, but would occur in the context of anxious attachment. Thus, in an effort to reduce depression contagion among couples, clinicians are advised to focus on reducing anxious attachment.

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Depression can be contagious. This means that not only do depressed individuals experience depressive symptoms, but their romantic partners are also at risk of vicariously experiencing depressive symptoms. From an attachment lens, this vicarious transfer of depressive symptoms between romantic partners is expected to be exacerbated in the context of anxious attachment relationship instability, and verbal aggression. Using 571 German couples from the Panel Analysis on Intimate Relationships and Family Dynamics, I tested how these three relationship factors may moderate the expression of depressive symptom contagion between men's and women's depressive symptoms at two time points. Results revealed that, generally, one partner's depressive symptoms were associated with less depressive symptoms in the other partner—suggesting the opposite of a depressive symptom contagion. However, for both men and women, anxious attachment increased the risk of depressive symptoms contagion between partners cross-sectionally but not longitudinally. Together these results contribute to the literature by suggesting that the depressive symptom contagion did not occur among a general population of German couples, but would occur in the context of anxious attachment. Thus, in an effort to reduce depression contagion among couples, clinicians are advised to focus on reducing anxious attachment.

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Chapter 1 - Introduction

Depressive symptoms can be contagious, meaning that individuals exposed to depressive symptoms in others can be at a greater risk of experiencing depressive symptoms themselves (Joiner & Katz, 1999). This is called depressive symptom contagion and has staggering implications. For example, millions of adults are diagnosed with depression each year around the world (Depression, 2017). Particularly in Germany, women's risk for depressive symptoms grows higher each year and women continually report higher depressive symptoms than men (Bretschneider et al., 2012; Thorn et al., 2017). Furthermore, men and women with depressive symptoms in Germany also are at risk for poorer health and lower social functioning (Maske, Buttery, Bessdo-Baum, Riedel-Heller, Hapke, & Busch, 2016) as well as an increased risk for suicide (Hawton, Comabella, Haw, & Saunders, 2013). Due to depressive symptom contagion, the more that people are exposed to depressive symptoms, the more likely they are to experience depressive symptoms themselves and struggle with these similar challenges. This is concerning for people in romantic relationships as they can be uniquely vulnerable to depressive symptom contagion. Furthermore, this is problematic as couples with depressive symptoms often have difficulty communicating with each other and have more emotionally strained relationships (Sharabi, Delaney, & Knobloch, 2016). From an attachment theoretical framework (Bowbly, 1969; Hazan & Shaver, 1987), the depressive symptom contagion occurs because one partner is anxiously attached with the other partner and, thus, vulnerable to the depressive symptom contagion. Despite the growing literature on the depressive symptom contagion among romantic couples (e.g., Joiner & Katz, 1999; Katz, Beach, & Joiner, 1999), it remains unclear when this contagion occurs in some couples and not in other couples (Joiner & Katz, 1999). Understanding

the contexts that explain this contagion are important and can provide insight for clinicians in treating depressive symptoms in romantic couples.

Although, it is known that the expression of depressive symptoms can be related with biology, hereditary, and numerous other causes (Chaturvedi, Clancy, Schaefer, Oluwole, & McCrae, 2017; Lebowitz, Ahn, & Nolen-Hoeksema, 2013; Okbay et al., 2016), in this study I focus on how depressive symptoms may be linked with a partner's depression symptoms, and three salient relationship dynamics that may moderate this link. More specifically, I will study to what extent an anxious attachment style, verbal aggression, and relationship instability moderate depression symptom contagion between partners (Bishop, Norona, Roberson, Welsh, McCurry, 2019; Sharabi, Delaney, & Knobloch, 2016). Each of these relationship factors are associated with elevated depressive symptoms separately (Bishop, Norona, Roberson, Welsh, McCurry, 2019, Knobloch & Knobloch-Fedders, 2010; Sharabi, Delaney, & Knobloch, 2016), and they could explain the contexts wherein depressive symptom contagion occurs in couples. Thus, relying on attachment theory and existing literature, I aim to test to what extent these three relationship factors might moderate the association between partnered men's and women's depressive symptoms concurrently and also at two time points one year apart. These findings contribute to the literature in at least three ways. First, these findings can explain the contexts of when the depressive symptom contagion occurs in romantic couples. Second, they add to the few studies that used large samples and advanced statistical methods to examine the depressive symptom contagion by using a larger sample of 571 couples using moderated path analyses. Lastly, these findings can offer key insights for clinicians in working with couples presenting with depressive symptoms to better understand how certain relationship factors could potentially increase the risk of a depressive symptom contagion.

Chapter 2 - Theory and Literature Review

Attachment Theory

Romantic relationships can be a source of comfort and stability for many partners. This dynamic, however, becomes altered when a partner experiences depressive symptoms. From an attachment theory (Bowlby, 1969) framework, depressive symptoms can arise out of how individuals regulate themselves when presented with stress and negative events in the context of their close relationships. Partners first learned how to interact and regulate themselves from how they interacted with their parents when they were infants. For example, parents who were warm and supportive when they were stressed, developed a secure bond with their parent. On the other hand, parents who were dismissive, avoidant, or harsh when they were stressed, developed a more insecure bond with their parents. When adults, these bonds are played out in romantic relationships. When one partner experiences depressive symptoms, this can be stressful for the couple. Insecurely attached partners will be more fearful, anxious, and distressed and as such doubt themselves, their relationship, and be unsure of how to approach their partner. From this, insecure partners are theoretically vulnerable to depressive symptoms.

This insecure attachment can be expressed relationally, and thus certain relationship dynamics can explain the context for when depressive symptom contagion occurs. Avoidant and anxious attachment behaviors are both common ways partners respond when their relationship feels threatened. Avoidant attachment is characterized by responding to this discomfort in the relationship with distance, whereas anxious attachment is characterized by responding to this discomfort with heightened efforts to seek out reassurance and connection (Mikulincer & Shaver, 2007). In this study I focus specifically only on anxious attachment due to the expected exacerbated effect on partners of this reassurance-seeking from a partner who is already

struggling with a more depressed mood. Thus, anxious attachment, relationship instability, and

verbal aggression are highly salient relationship factors from an attachment perspective. First

within romantic relationships, insecure attachments can be illustrated by an anxious attachment

style (Brennan, Clark, & Shaver, 1998; Mikulincer & Shaver, 2003). When partners struggle to

regulate themselves when distressed, partners with an anxious attachment will tend to doubt

themselves and be emotionally insecure, such as feeling that their partner does not like them as

much as before. In other words, an anxiously attached partner would be more vulnerable to

depressive symptoms when their partner experiences depressive symptoms. Second, when

partners are more anxiously attached, the doubts about themselves often turn to emphasizing

doubts about their relationship. An anxiously attached partner can perceive their relationship to

be unstable, which can theoretically dampen their mood and they may experience more

depressive symptoms. Thus, a partner who perceives greater relationship instability would be

vulnerable to depressive symptoms when their partner experiences depressive symptoms. Third,

anxiously attached partners may excessively seek their partner because they feel emotionally

insecure, which can lead them to be hostile or verbally aggressive towards their partner in an ill-

fated attempt at seeking assurance that a partner still cares. Theoretically, this verbal aggression

comes from an emotionally insecure place that would increase their risk of depressive symptoms.

From this, verbally aggressive partners would be at risk for depressive symptoms when their

partner experiences depressive symptoms.

       Taken together, anxious attachment, relationship instability, and verbal aggression can be

both directly linked with a partner's depressive symptoms and are expected to moderate the

expression of depressive symptoms between partners. Attachment theory provides a framework

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to study depressive symptom contagion among couples and explore the degree to which these relationship factors explain the depressive symptom contagion effect.

Literature Review

Depressive Symptom Contagion

The phenomenon of depressive symptoms being contagious and that people can also experience depressive symptoms by being around, working with, and living with people with depressive symptoms is generally supported by two meta-analyses (Joiner & Katz, 1999; Segrin & Dillard, 1992). However, when examining romantic relationships, specifically, there is some support for depressive symptom contagion, but there are also inconsistent findings within the literature. Particularly, young romantic partners are more likely to report depressive symptoms when their partners were depressed (Katz, Beach, & Joiner, 1998). Similarly, one partner's depressive symptoms were linked with increases in their partner's depressive symptoms (Katz, Beach, & Joiner, 1999). Also, both partners in the relationship tended to have similar levels of depressive symptoms over 10 years (Holahan, Moos, Moerkbak, Conrkite, Holahan, & Kenny, 2007). On the other hand, there are times when the depressive symptom contagion effect was not supported, such as among some romantic couples (Lemay & Cannon, 2012) and speed dating couples (Le, Gotlib, Noorgate, & Kuppens, 2016).

With that said, however, a number of studies supported only one direction of the contagion, meaning that the association either depended by gender or other factors. For example, men's depressive symptoms are linked with higher depressive symptoms in women (Revenson, Marin-Chollom, Rundle, Wisnivesky, & Neugut, 2016). This same association was also found in distressed couples (Kouros & Cummings, 2010) and mediated by women's stress (Knoll, Schwarzer, Pfuller, & Kienle, 2009). However, other findings suggest that men may be more

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vulnerable to women's depressive symptoms (Fredrisksen, von Soest, Smith, & Moe, 2019; Joiner & Katz, 1999; Kahn, Coyne, & Margolin, 1985) as women's depressive symptoms are linked with higher depressive symptoms in men (Morgan, Love, Durtschi, & May, 2018). Conversely, some studies suggest that there are minimal gender differences in how depressive symptom contagion occurs, but these studies strongly encourage more studies on the differences in how the depressive symptom contagion affects men and women (Benazon & Coyne, 2000; Joiner & Katz, 1999). Together this literature provides some support for the depressive symptom contagion effect among couples, but it could vary by gender. I aim to add to this literature by testing the depressive symptom contagion among both men and women in romantic relationships.

When examining this literature further, most studies used samples of less than 200 couples (e.g., Katz, Beach, & Joiner, 1999; Lemay & Cannon, 2012; Knoll, Schwarzer, Pfuller, & Kienle, 2009; Holahan, Moos, Moerkbak, Conrkite, Holahan, & Kenny, 2007; Le, Gotlib, Noorgate, & Kuppens, 2016), and only three with larger samples (Fredrisksen, von Soest, Smith, & Moe, 2019; Kouros & Cummings, 2010; Revenson, Marin-Chollom, Rundle, Wisnivesky, & Neugut, 2016). This suggests a need for studies with larger samples to increase the statistical power of the study to detect unique dyadic contexts of depressive symptom contagion within couples. Additionally, only three studies used actor-interdependence models to simultaneously assess and control for actor and partner effects within each couple (Fredrisksen, von Soest, Smith, & Moe, 2019; Kenny, Kashy, & Cook, 2006), whereas most of these studies relied on data from one partner using multiple regressions, correlations, and experimental designs (e.g., Kouros & Cummings, 2010; Knoll, Schwarzer, Pfuller, & Kienle, 2009). Using larger dyadic samples allows for more statistical rigor in examining the depressive symptom contagion effect

among couples. Further limiting generalizations from existing literature, most of this literature was cross-sectional with only three studies examining the depressive symptom contagion effect at more than one time point (Fredrisksen, von Soest, Smith, & Moe, 2019; Holahan, Moos, Moerkbak, Conrkite, Holahan, & Kenny, 2007; Kouros & Cummings, 2010). Considering this literature, I aim to contribute by using a large German sample, advanced statistical methods, and examining the depressive symptom contagion at two time points.

Severity of Depressive Symptoms

A number of studies about depressive symptom contagion among couples noted that their samples had "relatively low levels of depressive symptoms" (Fredrisksen, von Soest, Smith, & Moe, 2019; Holahan, Moos, Moerkbak, Conrkite, Holahan, & Kenny, 2007; Kouros & Cummings, 2010, p. 143; Revenson, Marin-Chollom, Rundle, Wisnivesky, & Neugut, 2016). These findings on couples with low levels of depressive symptoms could suggest that depressive symptoms do not need to reach clinical levels in order to affect their partner's depressive symptoms (Kouros & Cummings, 2010). However, two of these studies only supported one direction of the depressive symptom contagion effect, and it is possible that couples with less depressive symptoms may not completely capture the depressive symptom contagion effect. This is an important issue because previous studies using the Panel Analysis of Intimate Relationships and Family Dynamics—which I aim to use—revealed a large sample of couples with relatively low depressive symptoms on average (Morgan, Durtschi, Kimmes, 2018; Morgan, Love, Durtschi, & May, 2018). Given the potentially low levels of depressive symptoms, it is important to investigate those couples with depressive symptoms rather than couples with virtually no depressive symptoms. In order to address this, I aim to examine a contagion effect of depressive symptoms among couples by classifying if at least one partner reported a mild level

of depressive symptoms. That way I can test a sample of couples experiencing more depressive symptoms as well as test whether partner A's depressive symptoms is associated with more or less depressive symptoms in partner B.

Relationship Factors

Despite this sizable literature, there is a call for greater understanding of why and when depressive symptom contagion occurs in some couples and not in others (Joiner & Katz, 1999). A few studies have heeded this plea and identified women's stress (Knoll, Schwarzer, Pfuller, & Kienle, 2009) secure and insecure attachment (Fredrisksen, von Soest, Smith, & Moe, 2019), and reassurance seeking (Joiner, 1994) as contexts that explain when the depressive symptom contagion effect occurs within couples. However, these are not the only factors in romantic relationships. I answer this call and extend these few studies by examining additional relationship factors that can explain why the depressive symptom contagion occurs in some couples but not in others.

Recently, Sharabi and colleagues (2016) used qualitative methods to better understand what couples experienced when one or both partners were depressed. They analyzed responses from 135 couples who had been diagnosed by a professional for depression. They found depression had nine effects on these couples' relationships: emotional strain, less romance and sexual intimacy, struggle to communicate, isolated, lack of energy, dependence on the relationship, less understanding about depression, uncertainty about the relationship, a closer relationship, and miscellaneous effects. Although, many of the findings confirmed theoretical components that had been tested quantitatively for decades, Sharabi and colleagues also highlighted three important relationship factors that are especially germane to attachment theory, including: emotional insecurity (i.e., anxious attachment), relationship instability, and verbal

aggression for future research. However, I was unable to identify any study that examined these relationship factors together, and each of these relationship factors had yet be tested as moderators for the depressive symptom contagion. Thus, I aim to expand upon the literature by testing the role these relationship factors may have in explaining the depressive symptom contagion effect among couples. Even though these relationship factors have not been tested together in connection with depressive symptom contagion, these relationship factors have been separately linked with depressive symptoms.

Anxious Attachment. There is a wealth of literature examining the association between anxious attachment and depressive symptoms (e.g., Bishop, Norona, Roberson, Welsh, McCurry, 2019; Bowlby, 1980; Burnette, Davis, Green, Everett, Worthington Jr, & Bradfield, 2009; Cooper, Shaver, & Collins, 1998; Hankin, Kassel, & Abela, 2005; Lee & Hankin, 2009; Mickelson, Kessler, & Shaver, 1997; Simpson et al., 2003; Wei, Heppner, & Mallinckrdt, 2003; Whisman, 2017). A general consensus can be found in that those who are anxiously attached are more vulnerable to greater depressive symptoms. This association has been found among Chinese adults (Jinyao et al., 2012; Mak Bond, Simpson, & Rholes, 2010), US college students (Marganska, Gallagher, & Miranda, 2013), pre- and post-partum women (Scharfe, 2007), and new parents (Rholes, Simpson, Kohn, Wilson, Martin, Tran, & Kashy, 2011). One study examined the depressive symptom contagion using insecure attachment as a moderator among 1,036 couples transitioning to parenthood (Fredrisksen, von Soest, Smith, & Moe, 2019). Fredrisken and colleagues (2019) examined these couples at seven time points beginning with couples mid-pregnancy and 12 months postpartum. They found that insecurely attached partners were negatively affected by their partners' depressive symptoms six weeks later. This provides potential support for anxious attachment as a moderator, but also highlights several areas to

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consider when expanding upon this study. First, Fredrisken and colleagues measured insecure attachment as both avoidant and anxious attachment styles, making it unclear whether the moderation is due to anxious attachment or avoidant attachment styles. This is important as anxious and avoidant attachment styles are two different ways of coping with insecurities (Mikulincer & Shaver, 2003). Second, this sample was specific to parents expecting and then raising a child, which can be challenging for couples as they navigate new roles and responsibilities (Deave, Johnson, & Ingram, 2008). This experience could be different when examining general populations of couples. From this, we aim to build upon this study by specifically examining anxious attachment as a moderator of the depressive symptom contagion among a general sample of couples.

Verbal aggression. When partners verbally berate their partner by yelling, screaming, and stating demeaning comments they are being verbally aggressive. Although there is substantial support for verbal aggression to occur in couples generally (e.g., Gou & Woodin, 2017; Renner, Reese, Peek-Asa, & Ramirez, 2015), there are a few studies that examine verbal aggression specifically within couples coping with depressive symptoms. The expression of verbal aggression can be both a symptom of depressed mood and a partner receiving verbal aggression may be at elevated risk for depression. Couples with depressive symptoms can become verbally aggressive as evidenced by Sharabi's (2016) findings. Consequently, verbal aggression is associated with greater depressive symptoms (Graham, Bernards, Flynn, Tremblay & Wells 2012; Marshall, Sippel, & Belleau, 2011). Several decades ago, one study found that women's verbal aggression was associated with men reporting higher depressive symptoms, but men's aggression was not associated with women's depressive symptoms (Segrin & Fitzpatrick,

1992). From these few studies, there is a need for more studies on verbal aggression among couples with depressive symptoms.

Relationship instability. As couples manage one or both partner's depressive symptoms, they may feel their relationship is in trouble and feel uncertain about the future (Knobloch & Delaney, 2012; Sharabi et al., 2016). This is unsurprising as depressive symptoms have been linked with some couples ending their relationship (Breslau et al., 2011). Over the past decade, there is growing support that couples with depressive symptoms tend to experience relationship uncertainty or instability (Knobloch & Knobloch-Fedders, 2010). Particularly, depressive symptoms are linked with greater relationship instability (Knobloch & Knobloch-Fedders, 2010). This association was also found among military couples (Knobloch, Ebata, McGaughlin, & Ogolsky, 2013; Knobloch & Theiss, 2011), and mediated by coping (Fink & Shapiro, 2013). Additionally, in the context of depressive symptoms, relationship instability is linked with partners soliciting criticisms (i.e., negative feedback-seeking; Knobloch, Knoblcoh-Feeders, & Durbin, 2011) and partners preferences to avoid talking about important relationship topics (Knobloch, Sharabi, Delaney, & Suranne, 2016). Although relationship instability has been linked with greater depressive symptoms, it has not been used to describe the depressive symptom contagion effect among couples. I aim to add to these studies by examining relationship instability as a moderator between both partner's depressive symptoms.

Confounding variables. Beyond these three relationship factors, the literature has identified a number of confounding variables to consider when testing depressive symptoms in couple relationships. First, even when testing specific relationship dynamics, it is important to also test for the couple's overall level of relationship satisfaction (Katz, Beach, & Joiner, 1999). This is because relationship satisfaction broadly captures the overall feelings of the relationship

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and is linked with less depressive symptoms (Beach, Fincham, & Katz, 1997; Kouros & Cummings, 2010; Morgan, Durtschi, Kimmes, 2018). Second, it is important to also account for the length of time couples that have been together as relationships develop over time (Roberson, Norona, Lenger, & Olmstead, 2018). Third, depressive symptoms could be attributed to economic deprivation or hardships, which is also linked with worse depressive symptoms (Kavanaugh, Neppl, & Melby, 2018). Fourth, education is a viable aspect when considering depressive symptoms. For example, people with less education report greater risks of experiencing higher levels of depressive symptoms (von dem Knesebekc, Pattyn, & Bracke, 2011). This, however, is not always the case and people who are have more education also report higher depressive symptoms (Bracke, Pattyn, & von dem Knesebeck, 2013). Fifth, couples with household income at and below poverty levels are more susceptible to depressive symptoms (Kessler et al., 1994; Zimmerman & Katon, 2005), thus household income is a viable control. Sixth, overall health is related with depressive symptoms in that poorer health is associated with higher depressive symptoms (Jones, Ledermann, Fauth, 2018; Kosloski, Stull, Kercher, & Van Dussen, 2005). Seventh, age has been associated with depressive symptoms, particularly among older adults (Kessler, Foster, Webster, & House, 1992; Tampubolon & Maharani, 2017). Eighth, there are a number of aspects to consider when examining a German population, which include relationship status, residing in East or West Germany, and migrant status. Married couples tend to report less depressive symptoms than couples that are cohabiting (Maske, Buttery, Bessdo-Baum, Riedel-Heller, Hapke, & Busch, 2016). There continue to be differences in depressive symptoms based on whether residents live in the Eastern or Western regions of Germany (Thorn et al., 2017; Helbich, Plener, Hartung, & Blüml 2017). Finally, first and second generation migrant women tend to report more depressive symptoms than native Germans (Sieberer,

Maksimovic, Ersoz, Machleidt, Ziegenbien, & Calliess, 2012). Based on this literature, when testing the depressive symptom contagion effect among couples, we aim to control for men's and women's relationship satisfaction, age, education, and health as well as economic deprivation, household income, relationship duration, relationship status, residing in East or West Germany, and migrant status.

Present Study

Using attachment theory as a framework and based in the existing literature, I aim to test the extent to which anxious attachment, relationship instability, and verbal aggression moderate the depressive symptom contagion effect between partners in a romantic relationship. In order to establish a possible contagion effect, I will determine to what extent men's and women's depressive symptoms are correlated at one time point and then at one year later. Next, I then aim to test the following research questions:

RQ1: To what extent do men's and women's anxious attachment, relationship instability, and verbal aggression predict their own (actor effects) and their partners' (partner effects) depressive symptoms cross-sectionally?

RQ2: To what extent do anxious attachment, relationship instability, and verbal aggression moderate the association between men's depressive symptoms predicting women's depressive symptoms cross-sectionally, as well as women's depressive symptoms predicting men's depressive symptoms cross-sectionally?

RQ3: To what extent do anxious attachment, relationship instability, and verbal aggression moderate the association between men's depressive symptom predicting women's depressive symptoms one year later, as well as women's depressive symptoms predicting men's depressive symptoms one year later?

Chapter 3 - Method

Procedure

This study was part of a series of projects studying depressive symptoms and relational dynamics in romantic couples using the Panel Analysis of Intimate Relationships and Family Dynamics (Pairfam; Morgan, Durtschi, & Kimmes, 2018; Morgan, Love, Durtschi, & May, 2018), thus there are some methodological similarities between these studies using this same data set. This study expands upon these previous studies by specifically examining the depressive symptom contagion among couples cross-sectionally and longitudinally. Specifically, I used two waves (Waves 3 and 4) from the Pairfam (Release 9.1; Bruderl et al., 2018), which is a longitudinal study of a nationally representative German sample. The developers accomplished this by using a stratified sampling design that divided the country into regions and then sampling households within those regions. Respondents were comprised of anchors from three different cohorts by birth year: 1971-1973, 1981-1983, and 1991-1993. Beginning in 2008, the Pairfam annually assessed anchors and their partners on a variety of measures, which is expected to continue until 2022. Anchors were interviewed each year by a computer-assisted self-administered interview, whereas their romantic partner completed a questionnaire submitted via mail. In 2008, the sample consisted of 12,402 anchors and 3,743 partners. By Wave 3, the sample consisted of 7,901 anchors and 2,362 partners, whereas the sample consisted of 6,999 anchors and 2,182 partners by Wave 4. These data have been collected and are publicly available upon request. For more information on these procedures see Huinink et al. (2011) and steps to obtain access to the data visit http://www.pairfam.de/en/study.html.

Not all of the variables of interest were assessed at each wave. For example, anxious attachment was assessed at every other wave, whereas depressive symptoms were assessed at

every wave after the baseline wave. Thus, we used Waves 3 and 4, which had 1,992 couples who met inclusion criteria of remaining together for those two waves. The following couples were removed from the sample used due to not fitting the focus of this study on heterosexual adult couples who live together: Couples who identified as gay or lesbian couples ($N = 19$), widowed ($N = 3$), divorced or separated ($N = 66$), living a part, but together ($N = 249$), and couples with adolescent partners ($N = 4$) were excluded from the sample. This resulted in a sample of 1,642 heterosexual couples ages 18 and older.

As expected from previous literature (e.g., Morgan, Durtschi, & Kimmes, 2018), this sample had low average scores of depressive symptoms for both men ($M = 1.60$) and women ($M = 1.68$). Specifically, the majority of the sample reported minimal depressive symptoms with 76% of women and 83% of men had averages below 2, which corresponded to "sometimes experiencing depressive symptoms." Furthermore, at Wave 3, only 9% ($N = 106$) of couples had both partners reporting a 2 (*sometimes*) or higher, which is too small of a sample size to conduct path analyses (Kline, 2016). In order to examine a sample of couples where at least one partner was experiencing depressive symptoms at the level of "sometimes or more," I limited the sample to only those couples with at least one partner that rated a 2 (*sometimes*) or higher on their overall depressive symptoms. This allowed for an examination of the depressive symptom contagion among couples, particularly couples with at least one partner with more moderate depressive symptoms. This resulted in sample of 571 couples (35% of sample) with minimal to higher levels of depressive symptoms. On average, these couples had slightly higher depressive symptoms for both men ($M = 1.93$) and women ($M = 2.09$), while 31.80% of women and 49.40% of men had averages below 2.

Sample Characteristics

These sample characteristics were from men's and women's responses at Wave 3. On average, men were 35.99 years old (*SD* = 6.44) and women were 33.21 years old (*SD* = 5.79). Of these couples, the majority were married (76%) while 24% were cohabitating. These couples had, on average, been together for 11 years (*SD* = 5.99) and had a monthly household income of €2,940.69 ($4,082.97, *SD* = €1,200.95). Further, 75% had at least one child. Men in these relationships were, on average, 36 years old (*SD* = 6.44). Most men had full time employment (77%), 39% had a university level education. On the other hand, women in these relationships were, on average, 33 years old (*SD* = 5.79), 22% had full time employment, and 32% had a university level education. Concerning health, 25% of women and 16% men rated poor and bad overall health, while the remaining majority reported satisfactory to good levels of overall health. The majority of the sample, (81%) resided in the western region of Germany. Although most couples were native Germans (78%), 22% of couples included a partner with a 1st or 2nd generation migrant partner that were half-German (6%), ethnic-German immigrant (6%), of Turkish background (3%), and other non-German background (8%).

Measures

Depressive symptoms. Depressive symptoms were measured by ten items that assessed overall mood, which ranged from "I feel good" and "I enjoy life" to "I am depressed" and "My mood is gloomy". These items were rated on a scale from 1 (*almost never*) to 4 (*almost always*). This scale was from the State-Trait Depression Scales (Spaderna, Schmukle, & Krohne, 2002), which has been shown to be highly correlated with the Beck Depression Inventory (Beck & Steer 1987) and Zung Self-Rating Depression Scale (Krohne, Schmukle, Spaderna, & Spielberger, 2002; Zung, 1986). Although this is a German scale and given in the German language, it has

been shown to also have consistency in measuring depression among English speaking samples from the English version (Krohne, Schmukle, Spaderna, & Spielberger, 2002). I separated these items by biological sex in order to create men's and women's depressive symptoms. After recoding, higher scores indicated higher levels of depressive symptoms. These items were then averaged together to create a single measure of men's and women's depressive symptoms, which had strong reliability for both men (α = .90) and women (α = .88) at Wave 3 as well as for men (α = .87) and women (α = .86) at Wave 4.

Anxious attachment. Anxious attachment was measured by five items that were abbreviated from two subscales from the Munich Individuation Test of Adolescence (Walper, 1997, Walper, Schwarz, & Jurasic, 1996). The five items were "I have the feeling that I like my partner more than he/she likes me", "Sometimes I'm not sure if my partner enjoys being with me as much as I enjoy being with him/her", "I'm often afraid my partner thinks I'm silly or stupid if I make a mistake", "Sometimes I'm afraid that my partner would rather spend time with others than with me", and "When I disappoint or annoy my partner, I'm afraid that he/she won't like me anymore". All of the items were rated from 1 (*not at all*) to 5 (*absolutely*). These five items have been used previously as a measurement of anxious attachment (Kimmes, Durtschi, Clifford, Knapp, & Fincham, 2015; Park, Johnson, MacDonald, & Impett, 2019) and shown to be a valid measurement for anxious attachment when compared with The Experiences in Close Relationships-Revised Questionnaire (Fraley, Waller, & Brennan, 2000)—a widely used measure for attachment (Park, Johnson, MacDonald, & Impett, 2019). I separated these items by biological sex and then averaged the items together to create men's and women's anxious attachment. These had acceptable reliability for both men (α = .77) and women (α = .77) at Wave

3, which were comparable to previous studies where reliability ranged from .68 to .78 (Kimmes, Durtschi, Clifford, Knapp, & Fincham, 2015; Park, Johnson, MacDonald, & Impett, 2019).

Relationship instability. Three items measured relationship instability that were adapted from the Marital Instability Index (Booth, Johnson, & Edwards, 1983). Each partner responded to whether they had in the past year "thought that [their] relationship or marriage was in trouble", "seriously considered a separation or a divorce", and "seriously suggested to [their] partner a separation or divorce, or [their] partner suggested it to you". These items were rated from 1 (*yes*) to 2 (*no*). I recoded these items and then averaged them together, so that higher scores indicated more instability about the relationship. Additionally, I separated these items by biological sex to create men's and women's relationship instability, which had acceptable reliability for men (α = .81) and women (α = .82) at Wave 3.

Verbal aggression. Verbal aggression was measured by two items that assessed verbal or non-physical forms of aggression, which were adapted from the Marital Communication Questionnaire (Bodenmann, 2000). Each partner was asked how often they "insulted or verbally abused" and "yelled" at the other partner. This was rated from 1 (*almost never or never*) to 5 (*very frequently*). I coded these items by biological sex and then averaged them together to create men's and women's verbal aggression, which had acceptable reliability for both men (α = .80) and women (α = .78) at Wave 3.

Controls. Relationship satisfaction was assessed from 1 (*very dissatisfied*) to 10 (*very satisfied*), relationship status was coded as 0 = cohabiting or 1 = married, education was recoded to be 2 (*university level or tertiary education*) or 1 (*less than university or tertiary education*), number of children, migrant status was coded as 1 (*migrant background*) or 2 (*German native, non-migrant*), overall health during the past 4 weeks was rated from 1 (*bad*) to 5

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(*good*), full time employment was coded as 2 (*full time employment*) or 1 (*other types of employment*), and age (*years*). Household income (*in Euros*) was coded so that outlier values greater than 3 standard deviations from the mean were coded as the value of 3 standard deviations. Economic deprivation was measured by two items from the economic deprivation scale (Schwarz et al., 1997) which asked if couples had to forgo something because of their budget and were mostly short of money. These items were rated from 1 (*not at all correct*) to 5 (*completely correct*) and an average score computed. Economic deprivation had strong reliability ($\alpha = .89$). All of these controls were coded at Wave 3. Of these controls, the following variables were divided by biological sex to create controls for men and women: relationship satisfaction, age, education, full time employment, and health. The remaining variables represented controls at the couple level, including household income, economic deprivation, number of children, relationship duration, migrant status, residing in West Germany, household income, and relationship status. It is important to note that all of these measures were presented in the German language to German couples. For further measurement details see Thonnissen, Wilhelm, Friedrich, Alt, and Walper (2014) and Table 1.

Table 1. *Descriptions of Men's and Women's Depressive Symptoms, Relationship Factors, and Controls (N = 571 couples).*

Variable	M or %	SD	Range	α
Men's Depressive Symptoms W3	1.93	.51	1 – 4	.90
Women's Depressive Symptoms W3	2.09	.53	1 – 4	.88
Men's Depressive Symptoms W4	1.86	.52	1 – 4	.87
Women's Depressive Symptoms W4	2.05	.54	1 – 4	.86
Men's Anxious attachment	1.94	.79	1 – 5	.77
Women's Anxious attachment	1.94	.83	1 – 5	.77
Men's Relationship Instability	1.21	.34	1 – 2	.81
Women's Relationship Instability	1.26	.37	1 – 2	.82
Men's' Verbal Aggression	1.93	.92	1 – 5	.80
Women's Verbal Aggression	2.29	1.08	1 – 5	.78
Men's Age	35.99	6.44	19 – 70	-
Women's Age	33.21	5.79	18 – 51	-
Economic Deprivation	2.79	1.17	1 – 5	.89
Number of Children	1.49	1.18	1 – 10	-
Relationship Duration	10.52	5.99	.08 – 34.58	-
Migrant[a]	22.40%	-	1, 2	-
West Germany[b]	81.10%	-	1, 2	-
Married[c]	76.20%	-	1, 2	-
Men's Relationship Satisfaction	7.58	1.97	1 – 10	-
Women's Relationship Satisfaction	7.22	2.23	1 – 10	-
Men Completed College[d]	38.80%	-	1, 2	-
Women Completed College[d]	32.40%	-	1, 2	-
Household Income	2940.69	1200.95	1 – 2	-
Men's General Health	3.47	.98	1 – 5	-
Women's General Health	3.26	1.06	1 – 5	-
Men's Full-Time Employment	76.70%	-	1, 2	-
Women's Full-Time Employment	22.40%	-	1, 2	-

Note: [a] reference group was non-migrant. [b] reference group was East Germany. [c] reference group wascohabitating. [d] reference group was those with less than completed college. All of the variables, unless specified, were measured at Wave 3.

Analytic Plan

The analytic plan was carried out in a number of steps. First, variables were coded in

SPSS 25 (IBM, 2018). Particularly, to test how the relationship factors would moderate men's

and women's depressive symptoms, I created the following interaction terms using Wave 3

measures. Women's depressive symptoms were multiplied with men's anxious attachment,

relationship instability, and verbal aggression, respectively, to create three interaction terms.

Next, men's depressive symptoms were multiplied with women's anxious attachment,

relationship instability, and verbal aggression, respectively, to create another three interaction

terms. Second, preliminary analyses were conducted using SPSS and Mplus 8.0 (Muthén &

Muthén, 2012). Specifically, I tested for any measurement differences between anchor and

partner scores, and determined an appropriate estimator to account for non-normality as well as

missing data. Due to the dyadic nature of these analyses, I also tested for distinguishability

between partners (Kenny, Kashy, & Cook, 2006).

Third, prior to testing the research questions, I conducted Pearson's correlations.

Specifically, I used bivariate correlations, in Mplus, to test the degree that men's and women's

depressive symptoms at both waves were correlated (see Figure 1). Fourth, using Mplus to test

my research questions, I developed a path analysis model for men's and women's depressive

symptoms. Specifically, men's and women's anxious attachment, relationship instability, and

verbal aggression predicted men's depressive symptoms for one model and then predicted

women's depressive symptoms for the other model (see Figure 1). Due to couples seldom

agreeing on the effects that depressive symptoms have on their relationship (Sharabi, Delaney, &

Knobloch, 2016), I expected the actor effects to be more strongly associated with their own

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depressive symptoms, which would suggest that I use men's and women's relationship factors with their own depressive symptoms in the next steps.

Fifth, I tested a moderation path analysis (see Figure 2). Specifically, men's depressive symptoms were predicted by: women's depressive symptoms, anxious attachment, relationship instability, and verbal aggression, three interaction terms, and the controls. Next, women's depressive symptoms were predicted by: men's depressive symptoms, anxious attachment, relationship instability, and verbal aggression, three interaction terms, and the controls. Due to the use of interaction terms and tests between depressive symptoms, I standardized all of the predictors and controls. Good model fit was evaluated by common model fit indices (Kline, 2016), including: a non-significant chi-square test, CFI greater than .95, RSMEA and SMSR less than .05. Lastly, I added men's and women's depressive symptoms at Wave 4 as the outcome variables to the model in order to the depressive symptom contagion one year later (see Figure 3).
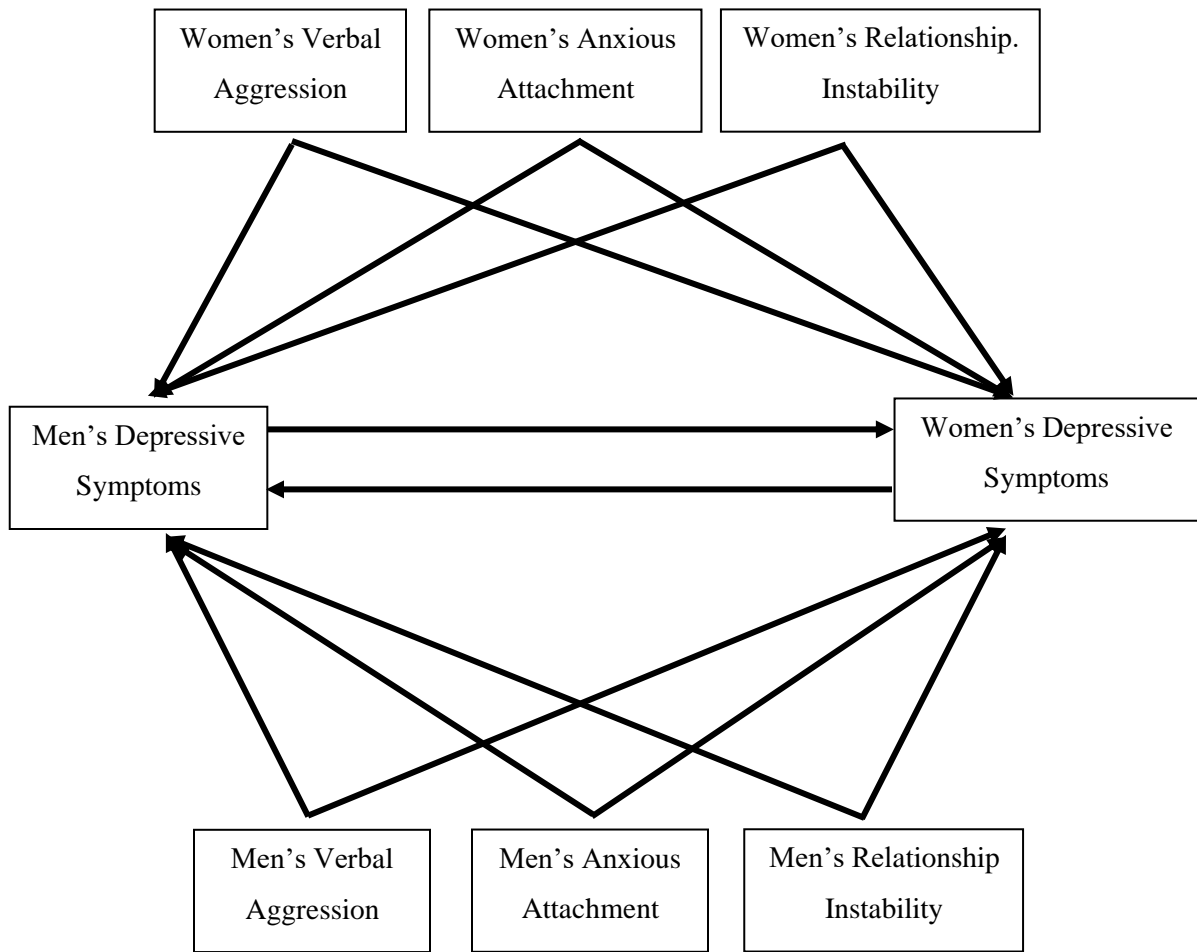
Figure 1. *Path Analysis to Test Actor and Partner Effects.*

Note: All of the variables were measured at Wave 3. Controls are men's and women's age, full-time employment, relationship satisfaction, education, and health as well as household income, economic deprivation, relationship status, migrant status, resident in West Germany, and number of children.

Women's Verbal Aggression X Men's Depressive Symptoms	Women's Anxious Attachment X Men's Depressive Symptoms	Women's Relationship. Instability X Men's Depressive Symptoms

Men's Depressive Symptoms		Women's Depressive Symptoms

Men's Verbal Aggression X Women's Depressive Symptoms	Men's Anxious Attachment X Women's Depressive Symptoms	Men's Relationship Instability X Women's Depressive Symptoms
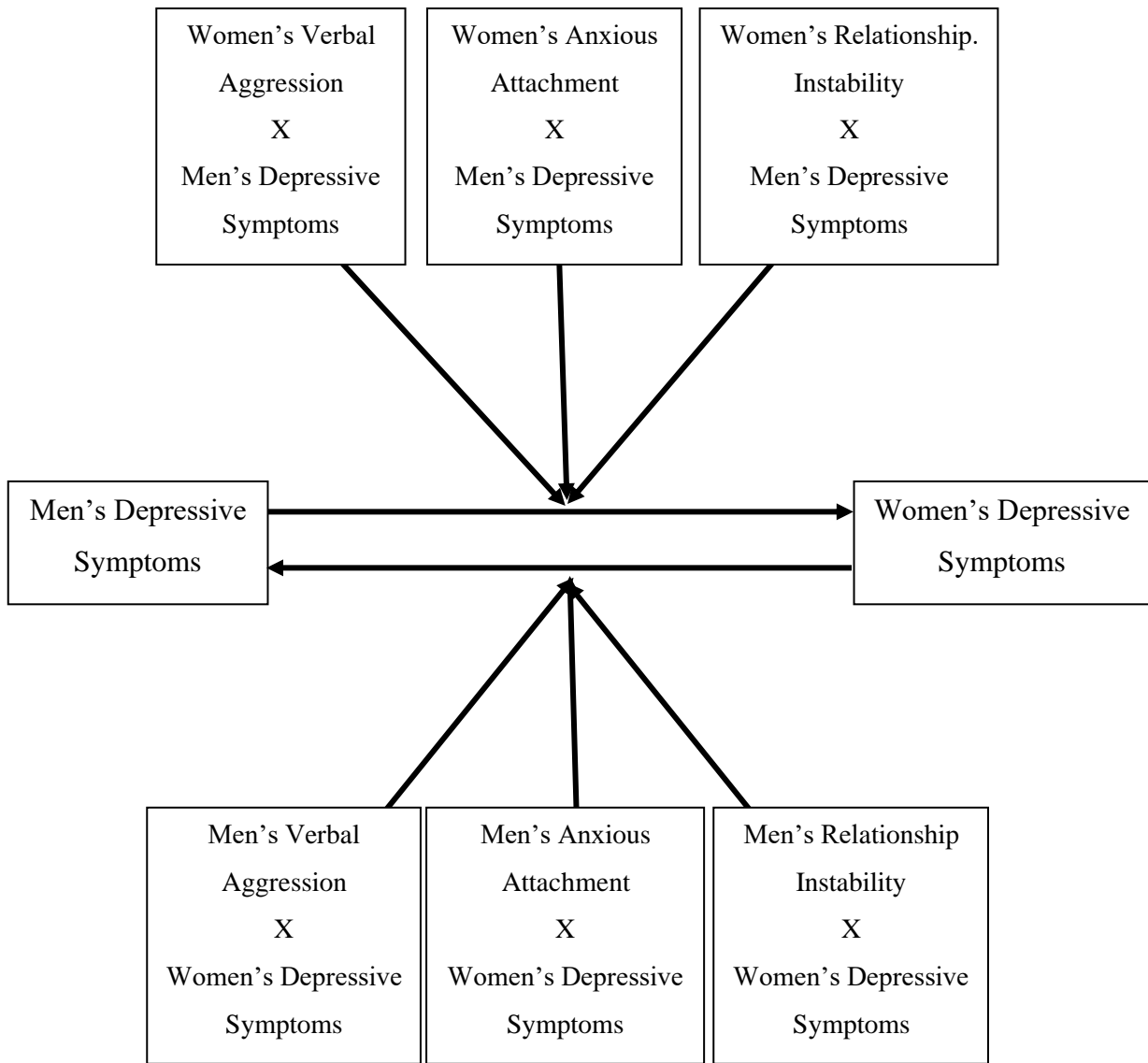
Figure 2. *Moderated Path Analysis Model at One Time Point.*

Note: All of the variables were measured at Wave 3. *Note:* All of the variables were measured at Wave 3. Controls are men's and women's age, full-time employment, relationship satisfaction, education, and health as well as household income, economic deprivation, relationship status, migrant status, resident in West Germany, and number of children.

Figure 3. *Moderated Path Analysis Model at Two Time Points.*
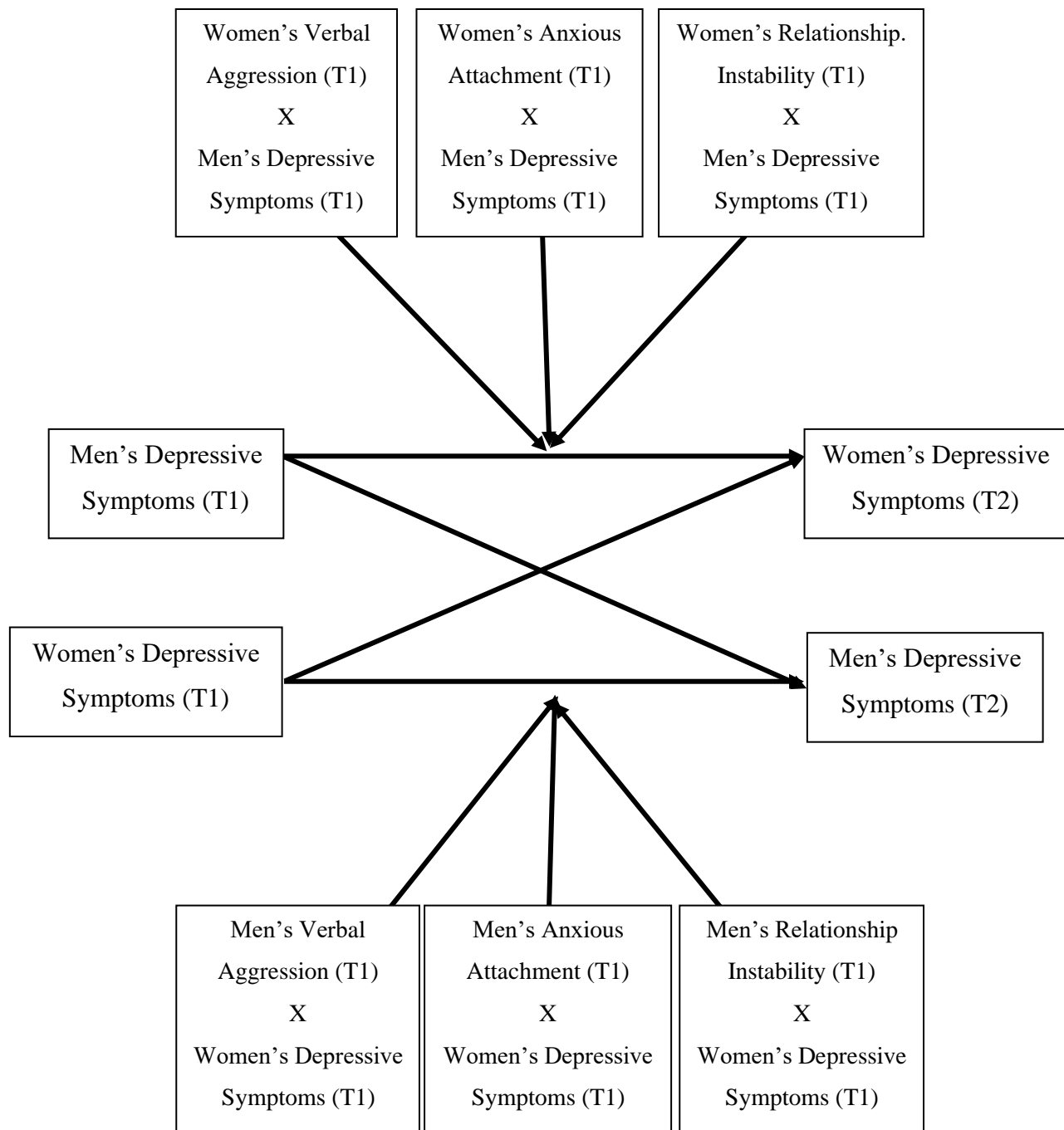
Note: T1 = Wave 3, T2 = Wave 4. All of the variables were measured at Wave 3. Controls are men's and women's age, full-time employment, relationship satisfaction, education, and health as well as household income, economic deprivation, relationship status, migrant status, resident in West Germany, and number of children.

Chapter 4 - Results

Preliminary Analyses

Measurement *t*-tests. I used independent *t*-tests to examine any measurement differences between anchor and partner responses for some of the controls as well as all of the predictor and outcome variables. From these tests, seven were significant, which ranged relationship instability (Cohen's $d = .07$) and age ($d = .15$) to health ($d = .22$). These variables demonstrated effect sizes below or close to .20, so I moved forward with men's and women's responses of those variables.

Estimator. To adequately test the research questions, I evaluated the degree of missing data and non-normality to determine an appropriate estimator. Missing data ranged from 0% (e.g., relationship status) as the lowest to 12% (men's depressive symptoms Wave 4) as the highest amount of missing data. These variables demonstrated normal distributions at the univariate level, but non-normal distributions at the multivariate level. Particularly, the moderator variables revealed skewness greater than ±3 and kurtosis ±7. Given the level of missing and non-normality, I used maximum likelihood estimation with robust standard errors (MLR; Muthén & Muthén, 2010), which accounts for missing data and non-normality.

Distinguishability. Due to the nature of dyadic data, I conducted an omnibus test of distinguishability to examine if the model could distinguish between men's and women's responses (Kenny, Kashy, & Cook, 2006). To accomplish this, in Mplus, I developed the RQ2 model (Figure 2), and constrained all of the pathways, correlations, variances, and means to be the same. In comparing this constrained model to the unconstrained model, a significant MLR chi-square difference test (χ_2 (191) = 2265.16, $p < .01$) found that the partners were indeed distinguishable. Thus, all statistical analyses were conducted by freely estimating the means, variances, and covariances between both partners in these models.

Correlations. To see if the depressive symptom contagion occurred in our sample, I ran Pearson correlations to test the degree men's and women's depressive symptoms were associated at Waves 3 and 4. These revealed a number of significant findings. First, the association between women's depressive symptoms and men's depressive symptoms were significant at Wave 3 ($r = -.32$) and Wave 4 ($r = -.09$). Second, women's depressive symptoms at Wave 3 were associated with men's depressive symptoms at Wave 4 ($r = -.21$), while men's depressive symptoms at Wave 3 were associated with women's depressive symptoms at Wave 4 ($r = -.23$). Given these zero-order correlations between men's and women's depressive symptoms were all negative, these correlations provided support for the depressive symptom contagion to not occur at one time point or longitudinally. In fact, contrary to expectations, these zero-order correlations indicate that the more one partner is experiencing a depressed mood, the other partner is expected to report less of a depressed mood.

Path Analysis

In building up to testing the depressive symptom contagion effect, I evaluated RQ1 to test if actor and partner effects were associated with men's and women's depressive symptoms. To accomplish this, a path analysis examined both actor and partner effects predicting men's and women's depressive symptoms. This model shown in Figure 1 with bidirectional pathways between each partner's depressive symptoms did not converge, so to test RQ1, I instead tested each outcome in separate models. For example, all of the predictors and controls predicting women's depressive symptoms was one model, whereas all of the predictors and controls predicting men's depressive symptoms was another model. In each model, the variances of all the predictors and controls were correlated. Due to the use of moderators, all of the variables were standardized except the outcome variables, thus the results were drawn from the STDY

output in Mplus. This resulted in adequate or just-identified model fit for both men's and women's depressive symptom models: χ_2 (0) = 0, CFI = 1.00; TLI = 1.00, RMSEA = 0 (95% confidence interval [0, 0]), and SRMR = 0. Refer to Table 2 for the detailed results, as I summarize results here with significance at $p < .05$. Concerning the depressive symptom contagion, more depressive symptoms were associated with a decrease in their partners' depressive symptoms for both men ($\beta = -.28$) and women ($\beta = -.31$), while adjusting for multiple control variables. In general, a number of the actor effects were revealed to be significantly associated with depressive symptoms, whereas only one partner effect was significant. Specifically, men's ($\beta = .18$) and women's anxious attachment ($\beta = .15$) was associated with an increase in their depressive symptoms at the same time point. Men's verbal aggression was associated with an increase in their own depressive symptoms ($\beta = .09$), however, women's verbal aggression was not associated with their own depressive symptoms. Women's relationship instability was associated with an increase in their own depressive symptoms ($\beta = .10$), but men's relationship instability was not associated with their own depressive symptoms. Concerning partner effects, only more women's verbal aggression was associated with a decrease in men's depressive symptoms ($\beta = -.10$). Of the controls, only the actor effects were significant. For example, higher relationship satisfaction was associated with decreases in men's ($\beta = -.16$) and women's ($\beta = -.13$) depressive symptoms. Put simply, these results suggest that the actor effects of the predictor variables (e.g., anxious attachment) were significantly associated with increases in depressive symptoms. These results generally supported for the use of use actor effects in predicting depressive symptoms.

Table 2. *Standardized Estimates, Standard Errors, and Significance Levels for Partnered Men's and Women's Depressive Symptoms at Wave 3 (N = 571).*

Parameter Estimate	Women's Depressive Symptoms β	SE	Men's Depressive Symptoms β	SE
Men's Depressive Symptoms (MDS)	-.31**	.04	-	-
Women's Depressive Symptoms (WDS)	-	-	-.28**	.04
Women's Verbal Aggression (WVA)	.08	.04	-.10*	.04
Women's Anxious Attachment (WAA)	.15**	.04	-.04	.04
Women's Relationship Instability (WRI)	.10*	.04	.05	.04
MDS x WVA	.06	.04	-.04	.04
MDS x WAA	.13**	.04	.03	.05
MDS x WRI	.04	.04	.15**	.04
Men's Verbal Aggression (WVA)	-.08	.04	.09*	.04
Men's Anxious Attachment (WAA)	.05	.04	.18**	.04
Men's Relationship Instability (WRI)	.00	.04	.07	.04
WDS x MVA	.00	.05	.01	.03
WDS x MAA	.07	.06	.12**	.04
WDS x MRI	.07	.06	.05	.03
Economic Deprivation	.03	.04	.05	.04
Number of Children	-.02	.04	-.02	.04
Relationship Duration	.04	.04	.01	.04
Migrant Status	.06	.04	.07*	.03
West Germany	.00	.03	-.03	.03
Married	.01	.04	.04	.04
Women's Relationship Satisfaction	-.13**	.04	.00	.04
Men's Relationship Satisfaction	.03	.03	-.16**	.04
Women's College Education	.01	.04	.02	.03
Men's College Education	.00	.04	.10**	.04
Women's' Health	-.31**	.04	.07*	.03
Men's Health	-.00	.04	-.34**	.04
Household Income	-.09*	.05	-.04	.05
Women's Full-Time Employment	.01	.04	.04	.04
Men's Full-Time Employment	.05	.04	-.03	.03
Men's Age	.04	.05	-.02	.05
Women's Age	-.05	.05	-.02	.05

Note. Men's and women's depressive symptoms as outcome variables were tested in two models, just-identified model fit for both men's and women's depressive symptom models: $\chi_2 (0) = 0$, CFI = 1.00; TLI = 1.00, RMSEA = 0 (95% confidence interval [0, 0]), and SRMR = 0. All of these variables were at Wave 3.
*$p < .05$. **$p < .01$ (two-tailed).

Moderated Path Analysis Model at One Time Point

Next, I examined how relationship factors (i.e., actor effects) moderated the depressive symptom contagion at one time point by conducting a moderated path analysis as shown in Figure 2. The predictors, moderators, interaction terms, and controls predicted men's and women's depressive symptoms. Due to the direct test of men's and women's depressive symptoms, the outcome variables were also standardized, thus all of the results from this model are standardized. This model had good model fit (χ_2 (8) = 4.99, $p > .05$; CFI = 1.00, RMSEA = 0.00 (95% confidence interval [0.0, 0.03]), and SRMR = .003). I summarize the significant associations ($p < .05$) here, refer to Table 3 for full details. The actor effects of men's and women's verbal aggression, anxious attachment, and relationship instability were associated with their own higher levels of depressive symptoms respectively. Higher depressive symptoms in one partner was associated with lower scores on depressive symptoms in a partner. Specifically, men's higher depressive symptoms were associated with less depressive symptoms in women (β = -.35) while women's higher depressive symptoms were associated with men reporting lower depressive symptoms (β = -.41).

Moderators. There were, however, only a few significant moderators. The depressive symptom contagion from women to men was moderated by men's anxious attachment (β = .14). Specifically, when men reported being more anxiously attached, women's depressive symptoms were associated with more depressive symptoms in men (Figure 5). The depressive symptom contagion from men to women was moderated by women's anxious attachment and followed the same pattern as above; namely, when women were more anxiously attached, men's depressive symptoms were associated with more depressive symptoms in women (β = .14; Figure 4).

Among the controls, women's higher relationship satisfaction was associated with women's lower depressive symptom scores (β = -.13). Women's health was also associated with women's lower depressive symptoms (β = -.32). Household income was associated with higher depressive symptoms in women (β = -.08). Additionally, men's higher relationship satisfaction was associated with men's lower depressive symptoms (β = -.17). Similarly, men's increases in health was associated with men's decreases in depressive symptoms (β = -.34). However, men's education was associated with more depressive symptoms (β = .11). Migrant status was associated with more depressive symptoms in men (β = .08).

Table 3. *Standardized Estimates, Standard Errors, and Significance Levels for Partnered Men's and Women's Depressive Symptoms (DS; N = 571).*

Parameter Estimate	Women's Depressive Symptoms		Men's Depressive Symptoms	
	β	SE	β	SE
Men's Depressive Symptoms (MDS)	-.35**	.07	-	-
Women's Depressive Symptoms (WDS)	-	-	-.41**	.07
Women's Verbal Aggression (WVA)	.05	.04	-	-
Women's Anxious Attachment (WAA)	.15**	.04	-	-
Women's Relationship Instability (WRI)	.11*	.04	-	-
MDS x WVA	.06	.04	-	-
MDS x WAA	.14**	.04	-	-
MDS x WRI	.03	.04	-	-
Men's Verbal Aggression (WVA)	-	-	.06	.04
Men's Anxious Attachment (WAA)	-	-	.20**	.04
Men's Relationship Instability (WRI)	-	-	.10*	.04
WDS x MVA	-	-	.02	.04
WDS x MAA	-	-	.14**	.04
WDS x MRI	-	-	.05	.03
Economic Deprivation	.03	.04	.04	.04
Number of Children	-.02	.04	-.04	.04
Relationship Duration	.05	.04	.01	.04
Migrant Status	.06	.04	.08*	.03
West Germany	-.00	.03	-.04	.03
Married	.01	.04	.03	.04
Women's Relationship Satisfaction	-.13**	.04	-	-
Men's Relationship Satisfaction	-	-	-.17**	.03
Women's College Education	-.00	.03	-	-
Men's College Education	-	-	.11**	.04
Women's' Health	-.32**	.04	-	-
Men's Health	-	-	-.34**	.04
Household Income	-.08*	.04	-.05	.04
Women's Full-Time Employment	.01	.03	-	-
Men's Full-Time Employment	-	-	-.05	.03
Men's Age	-	-	-.02	.04
Women's Age	-.04	.04	-	-

Note: All of these variables were at Wave 3. Model fit: $\chi_2 (8) = 4.99$, $p > .05$; CFI = 1.00, RMSEA = 0.00 (95% confidence interval [0.0, 0.03]), and SRMR = .003.
*$p < .05$. **$p < .01$ (two-tailed).
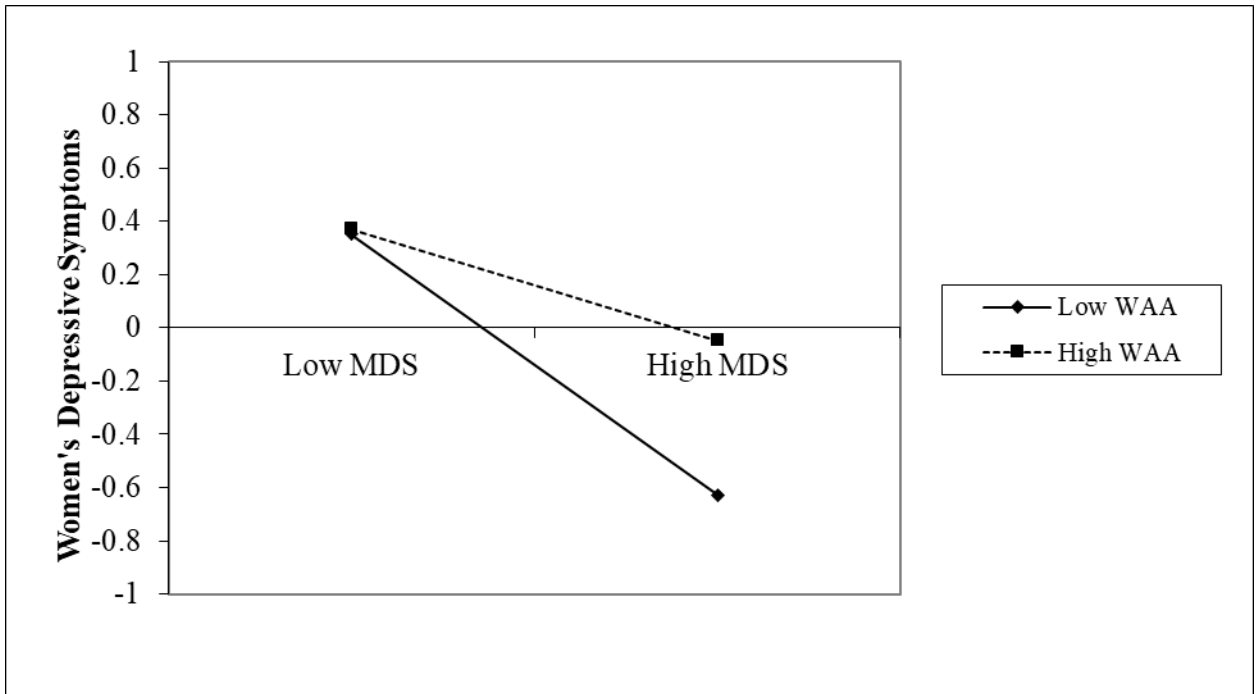
Figure 4. *Women's Anxious Attachment Moderates Men's Depressive Symptoms Predicting Women's Depressive Symptoms.*

Note: WAA = Women's Anxious Attachment. MDS = Men's Depressive Symptoms. All of the variables, including the outcome, were standardized, thus 0 in this figure represents the standardized mean of women's depressive symptoms in the sample.
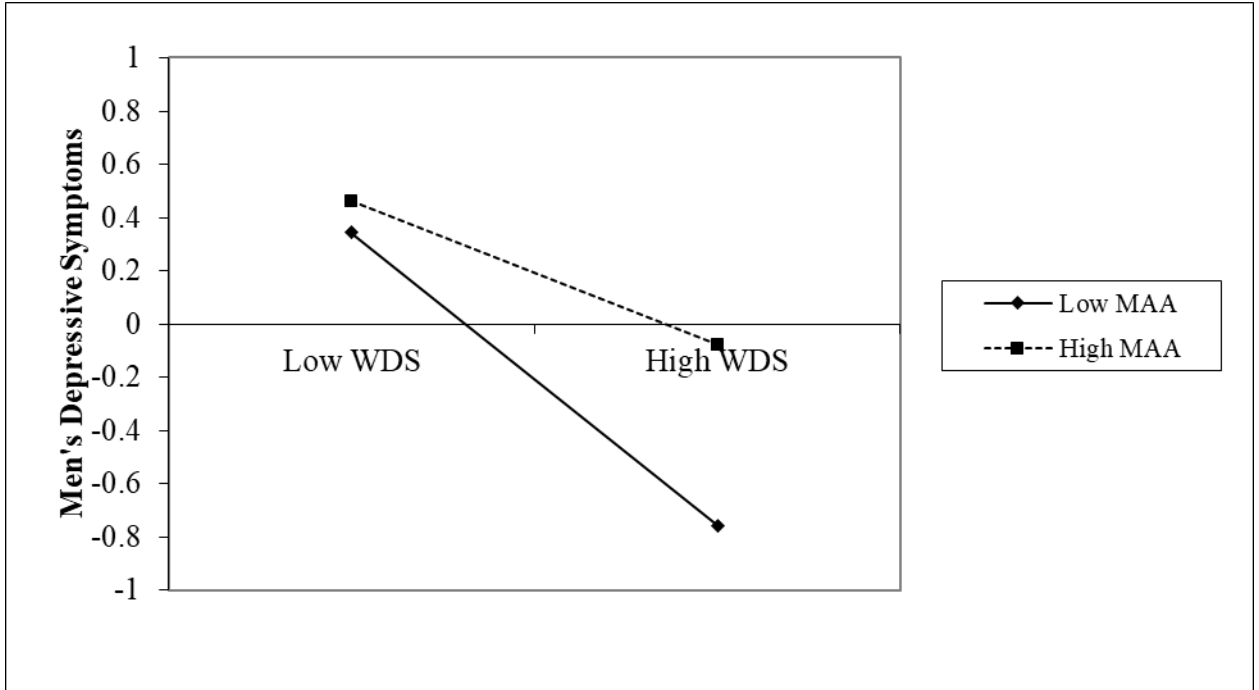
Figure 5. *Men's Anxious Attachment Moderates Women's Depressive Symptoms Predicting Men's Depressive Symptoms.*

Note: MAA = Men's Anxious Attachment. WDS = Women's Depressive Symptoms. All of the variables, including the outcome, were standardized, thus 0 in this figure represents the standardized mean of men's depressive symptoms in the sample.

Moderated Path Analysis Model at Two Time Points

Finally, to examine the depressive symptom contagion across two time points, I built upon the previous model by having the previous predictors, moderators, and controls predict men's and women's depressive symptoms one year later (Wave 4), while also controlling for their respective depressive symptoms at Wave 3 (see Figure 3). Similar to RQ1, all of the variables were standardized except the outcome variables, thus the results were drawn from the STDY output in Mplus. This model had good model fit (χ_2 (22) = 33.32, $p > .05$; CFI = .98, RMSEA = 0.03 (95% confidence interval [0.00, 0.05]), and SRMR = .01). This model revealed a number of significant associations ($p < .05$), which I summarize here. Refer to Table 4 for details. These results did not support a depressive symptom contagion longitudinally. Particularly, women's higher depressive symptoms predicted their own higher depressive symptoms one year later ($\beta = .54$), but did not predict men's depressive symptoms one year later. Similarly, men's depressive symptoms predicted their own higher depressive symptoms one year later ($\beta = .59$), but did not predict women's depressive symptoms one year later.

Moderators. None of the moderators were associated with men's and women's depressive symptoms one year later, meaning that the moderators did not significantly explain the depressive symptom contagion. Of the controls, only migrant status was associated with an increase in men's depressive symptoms one year later ($\beta = .09$).

Table 4. *Standardized Estimates, Standard Errors, and Significance Levels for Partnered Men's and Women's Depressive Symptoms (DS) at Two Time Points (N = 571).*

Parameter Estimate	Women's Depressive Symptoms		Men's Depressive Symptoms	
	β	SE	β	SE
Men's Depressive Symptoms (MDS)	-.04	.04	-.05	.04
Women's Depressive Symptoms (WDS)	.54**	.05	.59**	.05
Women's Verbal Aggression (WVA)	.05	.05	-	-
Women's Anxious Attachment (WAA)	.07	.05	-	-
Women's Relationship Instability (WRI)	-.04	.05	-	-
MDS x WVA	-.03	.04	-	-
MDS x WAA	-.00	.04	-	-
MDS x WRI	-.02	.05	-	-
Men's Verbal Aggression (WVA)	-		-.03	.04
Men's Anxious Attachment (WAA)	-		.04	.05
Men's Relationship Instability (WRI)	-		.02	.04
WDS x MVA	-		-.04	.04
WDS x MAA	-		.03	.04
WDS x MRI	-		-.02	.05
Economic Deprivation	.03	.05	.02	.04
Number of Children	.06	.05	.05	.04
Relationship Duration	-.04	.04	.01	.04
Migrant Status	.05	.04	.09**	.03
West Germany	-.03	.04	-.03	.04
Married	-.01	.04	.04	.04
Women's Relationship Satisfaction	.01	.04	-.03	.04
Men's Relationship Satisfaction	-	-	.01	.03
Women's College Education	-.05	.04	-	-
Men's College Education	-	-	-.08	.04
Women's' Health	-.07	.04	-	-
Men's Health	-	-	-.02	.04
Household Income	-.01	.04	.02	.04
Women's Full-Time Employment	.02	.04	-	-
Men's Full-Time Employment	-	-	.01	.04
Men's Age	-	-	-.07	.04
Women's Age	.05	.05	-	-

Note: All of these variables were at Wave 3, expect for the outcome variables: men's (MDS4) and women's (WDS4) depressive symptoms at Wave 4. Model fit: χ^2 (22) = 33.32, $p > .05$; CFI = .98, RMSEA = 0.03 (95% confidence interval [0.00, 0.05]), and SRMR = .01.
*$p < .05$. **$p < .01$ (two-tailed).

Chapter 5 - Discussion

Depression can be contagious among couples and I sought to examine the contexts for when this depressive symptom contagion occurs. Specifically, if this depressive symptom contagion is more likely to occur when partners are more anxiously attached, perceive an unstable relationship, and are verbally aggressive towards their partner. Among 571 German couples, I tested this using moderated path analyses. These results provided a number of insights to my research questions. Perhaps most importantly, I discovered overall limited evidence for a depression contagion effect; rather, I found that when one partner had higher depressive symptoms, the other partner tended to have lower depressive symptoms. Additionally, I found that, generally, men's and women's higher anxious attachment, relationship instability, and verbal aggression predicted their own (actor effects) higher depressive symptoms cross-sectionally (RQ1). Next, for both men and women, only anxious attachment moderated the association of depressive symptoms between partners cross-sectionally (RQ2). None of the relationship factors, however, moderated the association between women's depressive symptoms predicting men's depressive symptoms one year later (RQ3). Together these results contribute to the literature by identifying evidence contrary to a depression contagion effect, but rather a depression-suppression effect, characterized by higher depression in one partner being linked with lower depression in the other partner. However, in the context of anxious attachment, there was a significant elevated risk for a depression contagion to occur.

Depression Contagion Among Couples

Preliminary correlation analyses and the subsequent moderated path analyses consistently provided support for a depressive symptom contagion to not occur in this sample. Specifically, men's and women's higher depressive symptoms were associated with *less* depressive symptoms

in their partner at the same time point. This is contrary to what I was expecting and is inconsistent with much of literature, which showed that men's and women's depressive symptoms were associated with their partner's depressive symptoms (Fredrisksen, von Soest, Smith, & Moe, 2019; Joiner & Katz, 1999; Kahn, Coyne, & Margolin, 1985; Kouros & Cummings, 2010; Revenson, Marin-Chollom, Rundle, Wisnivesky, & Neugut, 2016; Morgan, Love, Durschi, May, 2018;). On the other hand, these results are somewhat consistent with one study that found one partners depressive symptoms to be associated with a reduced positive affect among speed dating couples (Le, Gotlib, Noorgate, & Kuppens, 2016). This finding is puzzling because it suggests the opposite of the contagion effect, among a general population of couples with mild depressive symptoms on average, in that these partners may be repelled by the other partner's depressive symptoms. From an attachment lens, I would expect one partner's depressive symptoms to be associated with the other partner's depressive symptoms. The fact that this did not occur suggests that depression is not contagious between partners.

As mentioned previously, this sample particularly represents couples with one partner reporting higher depressive symptoms than the other partner. Given this, these findings demonstrate a lack of a contagion effect among a general population of German couples. There are a couple of possible explanations for this. First, one finding from Sharabi and collegaues (2016) is that couples with depressive symptoms also found enhanced intimacy. Partners were able to be supportive, encouraging, and foster feelings of love and fulfilment (Sharabi, Delaney, & Knobloch, 2016). Given the high averages of relationship satisfaction among this sample, these couples could be less vulnerable because they are supportive of each other when the other partner experiences depressive symptoms. Second, another possible explanation for this could be that it was normal for men in these couples to experience some depressive symptoms while their

partner did not experience any depressive symptoms. Furthermore, in a large sample of German women, German housewives were at a reduced risk of experiencing depressive symptoms (Sperlich, Arnhold-Kerri, & Geyer, 2011). Speculatively, men in these relationships may under-function by not carrying out household, finance, and relationship tasks. In this case, men's depressive symptoms may not be contagious because women were caring for their partner. It is possible that these women may compensate for their partners depressive symptoms by carrying out more of the housework, income, and relationship tasks, which could reduce the likelihood of them experiencing a depressive symptom contagion. This could be possible for men as well in that they may compensate for their partner when they experience depressive symptoms. Third, men's and women's health status was also associated with their own less depressive symptoms at the same time point. The association between health and depressive symptoms has been established among German men and women (Maske, Buttery, Bessdo-Baum, Riedel-Heller, Hapke, & Busch, 2016), pointing out that health is an important aspect when considering depressive symptoms. However, our sample was moderately healthy and these findings suggest that greater health reduces risk of depressive symptoms. Speculatively, this suggests that improved health may act as a protective factor for depressive symptoms among these German couples. However, not all couples have good health. Previously, the literature has shown that poorer health is associated with higher depressive symptoms (Jones, Ledermann, Fauth, 2018; Kosloski, Stull, Kercher, & Van Dussen, 2005). Particularly from a stress generation perspective (Hammen, 1991), general health stressors and chronic health are strong stressors that generate depressive symptoms. Although our finding suggested health as a protective factor for depressive symptoms, given the literature and stress generation theory, I encourage future research to

examine the extant that health describes the context for the depressive symptom contagion among couples.

Anxious Attachment Moderates Depressive Symptoms Between Partners

Despite the depressive symptom contagion not occurring generally in this sample, anxious attachment was found to increase the risk of the depressive symptom contagion. Specifically, anxiously attached men and women were more vulnerable to experiencing depressive symptoms when their partners were also experiencing depressive symptoms. This supports attachment theory in that the more one partner experiences depressive symptoms, the more anxiously attached partner was more likely to experience the depressive symptom contagion. Particularly, an attachment lens could suggest that these men and women are more emotionally insecure and more worried about how their partner views them, than usual, when their partner experiences depressive symptoms. Their depressed partner maybe more withdrawn, irritable, and struggle to communicate with them, which could suggest that anxiously attached men and women pick up on this. Furthermore, this supports anxious attachment as a moderator—albeit cross-sectionally and with small effect sizes—for the depressive symptom contagion. Previously, insecure attachment was found to moderate the association between partner's depressive symptoms (Fredrisksen, von Soest, Smith, & Moe, 2019), and these findings expand this by specifically showing anxious attachment as a moderator for both partners. Theoretically, this supports an attachment lens in viewing depressive symptom contagion.

Together, these findings support that for both partners, anxious attachment explained the context for depressive symptom contagion. It is important to note, however, that these attachment styles can be a function of current relationship dynamics or enduring characteristics of the partner (Girme et al., 2018; Scharfe, 2003). Specifically, one partner's attachment style

can be stable over time as their attachment style was learned since childhood (Scharfe, 2003).

However, attachment styles can adjust to changes within the relationship as the relationship

develops over time (Fraley & Brumbaugh, 2004; Scharfe, 2003). This means that a partner's

anxious attachment could be a result of how their relationship is currently functioning, or a long

standing way of how the partner relates with people—especially romantic partners. Given that

we found that anxious attachment was a moderator for the depressive symptom contagion cross-

sectionally and not longitudinally, this could suggest that a partner's anxious attachment may act

as a function of current relationship dynamics. For example, this could explain why anxiously

attached men and women were affected by their partners depressive symptoms. The depressive

symptoms could disrupt how couples functioned and interacted with each other (Sharabi,

Delaney, & Knobloch, 2016), thus adjusting the way they attach to each other. On the other

hand, it is possible that these effects could be attributed to anxious attachment being a long

standing characteristic—particularly of the relationship. Couples who have been together for a

long time get used to each other. I speculate that couples together longer may be used to each

other's moods and depressive symptoms, thus, not be as affected by their partner's depressive

symptoms (Joiner & Katz, 1999). This could explain why given the context of anxious

attachment and their partner's depressive symptoms, men and women did not show an increase

in depressive symptoms one year later.

Verbal Aggression Not A Moderates For Depressive Contagion

Third, men's and women's verbal aggression was associated with their own higher

depressive symptoms at the same time point, which was consistent with previous literature (e.g.,

Graham, Bernards, Flynn, Tremblay & Wells 2012). However, verbal aggression was not found

to moderate the depressive symptom contagion between partners both cross-sectionally or

longitudinally one year later. Although verbal aggression can be problematic for relationships (Coyne et al., 2017; Schumacher & Leonard, 2005), our sample rated mild to almost moderate levels of verbal aggression. Thus, our sample may not be very verbal aggressive towards one another. Perhaps, men and women perceiving a little bit more yelling, may not be distressing enough to put them at risk of the depressive symptom contagion. This could be the main reason in why verbal aggression was not found to be a moderator of the depressive symptom contagion. Furthermore, from our attachment lens, we would have expected verbal aggression to moderate the depressive symptom contagion, but our findings did not support this notion.

Relationship Instability Not A Moderator For Depressive Contagion

Fourth and similar to verbal aggression, relationship instability was not found to moderate the depressive symptom contagion between partners both cross-sectionally or longitudinally one year later. Although the results were consistent with previous literature in that relationship instability was associated with higher depressive symptoms (e.g., Knobloch & Knobloch-Fedders, 2010), relationship instability did not describe the context for when depressive symptom contagion could occur among couples. One potential reason for this could be that this sample was not highly "unstable", meaning that they reported lower levels of relationship instability. Given previous work showing depressive symptoms as a risk for dissolution (Breslau et al., 2011) and potential relationship troubles (Knobloch & Delaney, 2012; Sharabi et al., 2016), it is possible that with samples of couples with greater instability, relationship instability may moderate the depressive symptom contagion. Thus, future research can examine relationship instability as a moderator among very distressed couples. Despite the non-significant findings, these findings contribute to the literature in that relationship instability had yet to be examined as a moderator for the depressive symptom contagion.

Lastly, although not a main focus in our study, but important considering the German population, migrant status was associated with an increase in men's depressive symptoms at one point in time as well as one year later. Given that this finding was accounting for all of the other controls as well as predictors, this points out a potentially important stepping stone for future researchers with German migrants and mental health. Interestingly, this is inconsistent with a previous study that found that first and second generation migrant women tend to report more depressive symptoms than native Germans than men (Sieberer, Maksimovic, Ersoz, Machleidt, Ziegenbien, & Calliess, 2012). Thus, it is particularly interesting that migrant status was only associated with men's depressive symptoms and not women's. Due the various migrant groups in Germany, it is beyond the scope of this study to identify gender roles and dynamics as they vary by ethnicity and acculturation. For example, it is documented that German migrants can vary in terms of stress and health factors based upon how assimilated, acculturated, or separated they are with the German culture (Brand et al., 2017). However, this finding does warrant a need for further examination of the importance of gender when examining migrants and mental health.

Implications

These findings can have a number of implications for clinicians working with couples that present with depressive symptoms. First, anxiously attached men and women are at an increased risk for depressive symptom contagion and as such I suggest that clinicians first assess for anxious attachment behaviors in couples. Particularly, emotionally focused couples therapy (EFT: Johnson, 2004) is a model of couples therapy that incorporates attachment theory in treating couples with depression and focuses on anxious attachment in the treatment (Denton, Wittenborn, & Golden, 2012; Dessaulles, Johnson, & Denton, 2003; Wiebe & Johnson, 2016; Wittenborn, Liu, Ridenour, Lachamr, Mitchell, & Seedall, 2019). Specifically, from an EFT

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approach, clinicians can first map the negative interaction cycle that partner's engage in when they argue as well as interactions that contribute to depressive symptoms. Mapping out this process can uncover attachment styles, particularly anxious attachment. Possible signs of an anxious attachment could be that partners express worry that their partner may not like them as much, and concern that they may not be good enough for their partner. Furthermore, anxiously attached partners often pursue their partner by asking lots of questions, doubting their partners responses, and potentially "clinging" to their partner for reassurance. Given these anxious attachment behaviors, their partners often respond by withdrawing or distancing themselves from their partner and when these partners experience depressive symptoms, this distancing could feel drastic to the anxiously attached partner and heighten their negative interaction cycle. This is a possible example of how this interaction could present in couples as clinicians map out the negative interaction cycle. As clinicians move forward with treatment, they can identify the underlying emotions that each partner experiences, but has difficulty sharing with a partner. These underlying emotions, theoretically, drive each partner to behavior and act their role in the cycle. Once identified, clinicians can aid couples, through enactments, to express these emotions with each other.

Second, I found that improved health could act as a proactive factor for both men's and women's depressive symptoms. Particularly, if couples present in good health, their health may be a positive factor reducing their depressive symptoms. Clinicians could continue to encourage these couples to improve and maintain their good health through diet, exercise, and healthy habits. Although our finding found health to be a protective factor, it is well established that one's health can be related with one's depressive symptoms (Goodwin, 2006; Patten et al., 2018). Particularly, poor health can be related with worse depressive symptoms (Patten et al.,

2018). Additionally, depressive symptoms can be attributed to a number of medication conditions (APA, 2013). Thus, it is important for clinicians to assess partner's overall health and how it relates with their depressive symptoms in order to accurately diagnose depressive symptoms as well as conduct a thorough assessment. Although clinicians are not medical physicians, clinicians can encourage partners to improve their health, attend appointments, and be compliant with medication to name a few examples. If couples present vital health and medical issues, it would be crucial for the clinician to be collaborating with the couple's medical physician with the couple's permission.

Limitations

These findings contribute to the literature, however, there are a number of limitations to acknowledge. First, and foremost, these findings are correlational and not causal. Furthermore, these significant associations were generally small effect sizes. Second, the depressive symptoms measure captured overall mood and was not able to measure other depressive symptoms identified the Diagnostic and Statistical Manual, 5th edition (DSM-5; American Psychiatric Association, 2013), such as loss of interest, changes in appetite, and thoughts of suicide. As mentioned previously, this sample generally reported lower levels of depressive symptoms. Thus, findings could be different among couples with higher depressive symptoms. Third, considering that anxious attachment was not a moderator for the depressive symptom contagion across two time points could suggest that one year may be too long of period of time to have an effect. For example, previously, insecure attachment acted as a moderator over a period of six weeks (Fredriksen, von Soest, Smith, & Moe, 2019). Future research can further examine how anxious attachment acts as a moderator for the depressive symptom contagion among shorter periods of time—potentially through daily dairy studies. Fourth, this couple also had low to

moderate levels of anxious attachment, verbal aggression, and relationship instability. These findings could be different among couples higher anxious attachment, verbal aggression, and relationship instability. As mentioned previously, future research could examine the depressive symptom contagion among couples that are more anxiously attached, verbally aggressive, and relationally unstable. Fifth, this sample was of German couples, fairly educated, and non-migrant status, and as such generalizability may be limited when comparing these results to other populations.

Conclusion

Depressive symptoms can be contagious, particularly among romantic couples. Even so, the depressive symptom contagion does not always occur and I sought to identify contexts for when this would occur in romantic relationships. This sample was less vulnerable to the other partner's depressive symptoms, however, this changed when considering some relationship factors. Anxiously attached men and women were more at risk for depressive symptom contagion. Together, these relationship factors were able to describe contexts for when the depressive symptom contagion could occur or not occur. Potentially, this opens the door for researchers to further explore other relationship factors as well as individual and environmental factors that can describe when this phenomenon occurs.

References

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders: DSM-5 (5th ed.). Arlington, VA: American Psychiatric Association.

Beach, S. R., Fincham, F. D., & Katz, J. (1998). Marital therapy in the treatment of depression: Toward a third generation of therapy and research. *Clinical psychology review, 18*(6), 635-661.

Beck, A. T. & Steer, R. A. 1987. *Manual of the Revised Beck Depression Inventory*. New York: Psychological Corporation.

Benazon, N. R., & Coyne, J. C. (2000). Living with a depressed spouse. *Journal of Family Psychology, 14*(1), 71-79. doi:http://dx.doi.org.er.lib.k-state.edu/10.1037/0893-3200.14.1.71

Bishop, J. L., Norona, J. C., Roberson, P. N., Welsh, D. P., & McCurry, S. K. (2019). Adult Attachment, Role Balance, and Depressive Symptoms in Emerging Adulthood. *Journal of Adult Development, 26*(1), 31-40.

Bookwala, J., Sobin, J., & Zdaniuk, B. (2005). Gender and aggression in marital relationships: A life-span perspective. *Sex roles, 52*(11-12), 797-806.

Booth, A., Johnson, D. R. & Edwards, J. N. (1983). Measuring marital instability. *Journal of Marriage and the Family, 45*(2), 387-394.

Bodenmann, G. (2000). *Stress und Coping bei Paaren* [Stress and coping in couples]. Göttingen: Hogrefe.

Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss.* New York, MY: Basic Books

Bracke, P., Pattyn, E., & von dem Knesebeck, O. (2013). Overeducation and depressive symptoms: diminishing mental health returns to education. *Sociology of health & illness, 35*(8), 1242-1259.

Brand, T., Samkange-Zeeb, F., Ellert, U., Keil, T., Krist, L., Dragano, N., ... & Zimmermann, H. (2017). Acculturation and health-related quality of life: results from the German National Cohort migrant feasibility study. *International journal of public health, 62*(5), 521-529.

Breslau, J., Miller, E., Jin, R., Sampson, N. A., Alonso, J., Andrade, L. H., et al. (2011) A multi-national study of mental disorders, marriage, and divorce. *Acta Psychiatrica Scandinavica, 124*, 474-486.

Bretschneider, J., Janitza, S., Jacobi, F., Thom, J., Hapke, U., Kurth, T., & Maske, U. E. (2018). Time trends in depression prevalence and health-related correlates: results from population-based surveys in Germany 1997–1999 vs. 2009–2012. *BMC psychiatry, 18*(1), 394.

Brüderl, Josef; Hajek, Kristin; Herzig, Michel; Lenke, Rüdiger; Müller, Bettina; Schütze, Philipp (2018). *Pairfam Data Manual.* Release 9.1, LMU Munich, Technical report.

Burnette, J. L., Davis, D. E., Green, J. D., Worthington, E. L., & Bradfield, E. (2009). Insecure attachment and depressive symptoms: The mediating role of rumination, empathy, and forgiveness. *Personality and Individuals Differences, 46*, 276 –280. doi:10.1016/j.paid.2008.10.016

Mak, M. C. K., Bond, M. H., Simpson, J. A., & Rholes, W. S. (2010). Adult attachment, perceived support, and depressive symptoms in Chinese and American cultures. *Journal of Social and Clinical Psychology, 29*(2), 144-165.

Chaturvedi, S., Clancy, M., Schaefer, N., Oluwole, O., & McCrae, K. R. (2017). Depression and post-traumatic stress disorder in individuals with hereditary hemorrhagic telangiectasia: A cross-sectional survey. *Thrombosis research, 153,* 14-18.

Cooper, M. L., Shaver, P. R., & Collins, N. L. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology, 74*, 1380 – 1397. doi:10.1037/0022- 3514.74.5.1380

Coyne, S. M., Nelson, D. A., Carroll, J. S., Smith, N. J., Yang, C., Holmgren, H. G., & Johnson, C. (2017). Relational aggression and marital quality: A five-year longitudinal study. *Journal of Family Psychology, 31*(3), 282–293. https://doi.org/10.1037/fam0000274

Deave, T., Johnson, D., & Ingram, J. (2008). Transition to parenthood: the needs of parents in pregnancy and early parenthood. *BMC pregnancy and childbirth, 8*(1), 30.

Denton, W. H., Wittenborn, A. K., & Golden, R. N. (2012). Augmenting antidepressant medication treatment of depressed women with emotionally focused therapy for couples: A randomized pilot study. *Journal of Marital and Family Therapy, 38*(1), 23–38.

Depression. (2017). *Depression and Other Common Mental Disorders: Global Health Estimates.* Geneva: World Health Organization. Licence: CC BY-NC-SA 3.0 IGO.

Dessaulles, A., Johnson, S. M., & Denton, W. H. (2003). Emotion-focused therapy for couples in the treatment of depression: A pilot study. *American Journal of Family Therapy, 31*(5), 345–353. doi: 10.1080/01926180390232266

Fink, B. C., & Shapiro, A. F. (2013). Coping mediates the association between marital instability and depression, but not marital satisfaction and depression. *Couple and Family Psychology: Research and Practice, 2*(1), 1.

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology, 78*, 350–365. http://dx.doi.org/10.1037/0022-3514.78.2.350

Fredriksen, E., von Soest, T., Smith, L., & Moe, V. (2019). Depressive symptom contagion in the transition to parenthood: Interparental processes and the role of partner-related attachment. *Journal of abnormal psychology, 128*(5), 397.

Goodwin, G. M. (2006). Depression and associated physical diseases and symptoms. *Dialogues in clinical neuroscience, 8*(2), 259.

Girme, Y. U., Agnew, C. R., VanderDrift, L. E., Harvey, S. M., Rholes, W. S., & Simpson, J. A. (2018). The ebbs and flows of attachment: Within-person variation in attachment undermine secure individuals' relationship wellbeing across time. *Journal of Personality and Social Psychology, 114*, 397–421. http://dx.doi.org/10.1037/pspi0000115

Graham, K., Bernards, S., Flynn, A., Tremblay, P. F., & Wells, S. (2012). Does the relationship between depression and intimate partner aggression vary by gender, victim–perpetrator role, and aggression severity?. *Violence and Victims, 27*(5), 730-743.

Gou, L. H., & Woodin, E. M. (2017). Relationship dissatisfaction as a mediator for the link between attachment insecurity and psychological aggression over the transition to parenthood. Couple and Family Psychology: *Research and Practice, 6*(1), 1.

Gupta, M., Coyne, J. C., & Beach, S. R. (2003). Couples treatment for major depression: Critique of the literature and suggestions for some different directions. *Journal of Family Therapy, 25*, 317-346. doi:

Hankin, B. L., Kassel, J. D., & Abela, J. R. (2005). Adult attachment dimensions and specificity of emotional distress symptoms: Prospective investigations of cognitive risk and

interpersonal stress generation as mediating mechanisms. *Personality and Social Psychology Bulletin, 31*(1), 136-151.

Hawton, K., i Comabella, C. C., Haw, C., & Saunders, K. (2013). Risk factors for suicide in individuals with depression: a systematic review. *Journal of affective disorders, 147*(1-3), 17-28.

Helbich, M., Plener, P. L., Hartung, S., & Blüml, V. (2017). Spatiotemporal suicide risk in Germany: A longitudinal study 2007–11. *Scientific reports, 7*(1), 1-8.

Holahan, C. J., Moos, R. H., Moerkbak, M. L., Cronkite, R. C., Holahan, C. K., & Kenney, B. A. (2007). Spousal similarity in coping and depressive symptoms over 10 years. *Journal of Family Psychology, 21*(4), 551-559. doi:http://dx.doi.org.er.lib.k-state.edu/10.1037/0893-3200.21.4.551

Hooper, D., Coughlan, J., & Mullen, M. (2008, September). *Evaluating model fit: a synthesis of the structural equation modelling literature.* In 7th European Conference on research methodology for business and management studies (pp. 195-200).

Huinink, J., Brüderl, J., Nauck, B., Walper, S., Castiglioni, L., & Feldhaus, M. (2011). Panel Analysis of Intimate Relationships and Family Dynamics (pairfam): Conceptual framework and design. *Zeitschrift für Familienforschung (Journal of Family Research) 23*, 77-101.

Jinyao, Y., Xiongzhao, Z., Auerbach, R. P., Gardiner, C. K., Lin, C., Yuping, W., & Shuqiao, Y. (2012). Insecure attachment as a predictor of depressive and anxious symptomology. *Depression and anxiety, 29*(9), 789-796.

Johnson, S. M. (2004). *The practice of emotionally focused couple therapy: Creating connection.* New York: Brunner-Routledge.

Joiner Jr, T. E., & Katz, J. (1999). Contagion of depressive symptoms and mood: Meta-analytic

    review and explanations from cognitive, behavioral, and interpersonal viewpoints.

    Clinical Psychology: Science and Practice, 6(2), 149-164.

Jones, J. W., Ledermann, T., & Fauth, E. B. (2018). Self-rated health and depressive symptoms

    in older adults: A growth mixture modeling approach. *Archives of gerontology and*

    geriatrics, 79, 137-144.

Kavanaugh, S. A., Neppl, T. K., & Melby, J. N. (2018). Economic pressure and depressive

    symptoms: Testing the family stress model from adolescence to adulthood. *Journal of*

    Family Psychology, 32(7), 957.

Katz, J., Beach, S. R. H., & Joiner, T. E. (1998). When does partner devaluation predict

    depression? Prospective moderating effects of reassurance seeking and self-esteem.

    Personal Relationships, 5, 409-421.

Katz, J., Beach, S. R., & Joiner Jr, T. E. (1999). Contagious depression in dating couples.

    Journal of Social and Clinical Psychology, 18(1), 1-13.

Keiley, M. K., Keller, P. S., & El-Sheikh, M. (2009). Effects of physical and verbal aggression,

    depression, and anxiety on drinking behavior of married partners: a prospective and

    retrospective longitudinal examination. *Aggressive Behavior: Official Journal of the*

    International Society for Research on Aggression, 35(4), 296-312.

Kenny, D. A., Kashy, D. A., & Cook, W. (2006). *Dyadic data analysis.* New York: Guildford.

Kessler, R. C., Foster, C., Webster, P. S., & House, J. S. (1992). The relationship between age

    and depressive symptoms in two national surveys. *Psychology and aging, 7*(1), 119.

Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, N., Eshleman, S… Kendler,

    K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in

the United States. Results from the National Comorbidity Survey. *Arch Gen Psychiatry*, *51*, 8–19.

Kosloski, K., Stull, D. E., Kercher, K., & Van Dussen, D. J. (2005). Longitudinal analysis of the reciprocal effects of self-assessed global health and depressive symptoms. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 60*(6), P296-P303.

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4rd Ed.). New York: Guildford Press.

Knobloch, L. K., & Delaney, A. L. (2012). Themes of relational uncertainty and interference from partners in depression. *Health Communication, 27*(8), 750-765.

Knobloch, L. K., Knobloch-Fedders, L. M., & Durbin, C. E. (2011). Depressive symptoms and relational uncertainty as predictors of reassurance-seeking and negative feedback-seeking in conversation. *Communication Monographs, 78*(4), 437-462.

Knobloch, L. K., Sharabi, L. L., Delaney, A. L., & Suranne, S. M. (2016). The role of relational uncertainty in topic avoidance among couples with depression. *Communication Monographs, 83*(1), 25-48.

Knobloch, L. K., & Theiss, J. A. (2011). Depressive symptoms and mechanisms of relational turbulence as predictors of relationship satisfaction among returning service members. *Journal of Family Psychology, 25*(4), 470.

Knoll, N., Schwarzer, R., Pfüller, B., & Kienle, R. (2009). Transmission of depressive symptoms: a study with couples undergoing assisted-reproduction treatment. *European Psychologist, 14*(1), 7-17.

Kouros, C. D., & Cummings, E. M. (2010). Longitudinal associations between husbands' and wives' depressive symptoms. *Journal of Marriage and Family, 72*(1), 135-147.

Krohne, H. W., Schmukle, S. C., Spaderna, H., & Spielberger, C. (2002). The state-trait

depression scales: An inter-national comparison. *Anxiety Stress and Coping, 15*(1), 105–

122. doi:10.1080/10615800290028422.

Kyu-Man, H., Hee-Jung, J., Hyonggin, A., Cheolmin, S., Ho-Kyoung, Y., Young-Hoon, K.,

Byung-Joo, H., Yong-Ku, K., & Changsu, H. (2019). Intimate partner violence and

incidence of depression in married women: A longitudinal study of a nationally

representative sample. *Journal of affective disorders, 245*, 305-311.

Lebowitz, M. S., Ahn, W. K., & Nolen-Hoeksema, S. (2013). Fixable or fate? Perceptions of the

biology of depression. *Journal of consulting and clinical psychology, 81*(3), 518.

Lee, A., & Hankin, B. L. (2009). Insecure attachment, dysfunctional attitudes, and low self-

esteem predicting prospective symptoms of depression and anxiety during adolescence.

Journal of clinical child & Adolescent Psychology, 38(2), 219-231.

Lemay Jr, E. P., & Cannon, K. T. (2012). Dysphoric reassurance seeking breeds contempt:

Experimental evidence. *Journal of Social and Clinical Psychology, 31*(10), 1023-1050.

Li, T., & Chan, D. K-S. (2012). How anxious and avoidant attachment affect romantic

relationship quality differently: A meta-analytic review. *European Journal of Social

Psychology, 42*(4), 406–419. https://doi.org/10.1002/ejsp.1842

Lin, C. H., Yen, Y. C., Chen, M. C., & Chen, C. C. (2014). Depression and pain impair daily

functioning and quality of life in patients with major depressive disorder. *Journal of

affective disorders, 166*, 173-178.

Marganska, A., Gallagher, M., & Miranda, R. (2013). Adult attachment, emotion dysregulation,

and symptoms of depression and generalized anxiety disorder. *American Journal of

Orthopsychiatry, 83*(1), 131-141.

Marmorstein, N. R. (2009). Longitudinal associations between alcohol problems and depressive symptoms: early adolescence through early adulthood. *Alcoholism: Clinical and Experimental Research, 33*(1), 49-59.

Marshall, A. D., Sippel, L. M., & Belleau, E. L. (2011). Negatively biased emotion perception in depression as a contributing factor to psychological aggression perpetration: a preliminary study. *The Journal of psychology, 145*(6), 521-535.

Maske, U. E., Buttery, A. K., Beesdo-Baum, K., Riedel-Heller, S., Hapke, U., & Busch, M. A. (2016). Prevalence and correlates of DSM-IV-TR major depressive disorder, self-reported diagnosed depression and current depressive symptoms among adults in Germany. *Journal of affective disorders, 190*, 167-177.

Mickelson, K. D., Kessler, R. C., & Shaver, P. R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology, 73*, 1092–1106. doi:10.1037/0022-3514.73.5.1092

Mikulincer, M., & Shaver, P. R. (2003). The Attachment Behavioral System in Adulthood: Activation, Psychodynamics, and Interpersonal Processes. In M. P. Zanna (Ed.), *Advances in experimental social psychology*, Vol. 35 (p. 53–152). Elsevier Academic Press. https://doi.org/10.1016/S0065-2601(03)01002-5

Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change.* New York: Guilford Press.

Morgan, P., Durtschi, J., & Kimmes, J. (2018). Sexual satisfaction associated with a shift in dyadic trajectories of depression in German couples across four years. *Journal of Marital and Family Therapy, 44*(4), 655-670.

Morgan, P., Love, H. A., Durtschi, J., & May, S. (2018). Dyadic causal sequencing of depressive symptoms and relationship satisfaction in romantic partners across four years. *American Journal of Family Therapy, 46*(5), 486-504.

Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus user's guide* (7th ed.). Los Angeles: Muthén & Muthén.

Okbay, A., Baselmans, B. M., De Neve, J. E., Turley, P., Nivard, M. G., Fontana, M. A., Meddens, S. F., Linnér, R. K., Rietveld, C. A., Derringer, J., Gratten, J., Lee, J. J., Liu, J. Z., de Vlaming, R., Ahluwalia, T. S., Buchwald, J., Cavadino, A., Frazier-Wood, A. C., Furlotte, N. A., Garfield, V., … Cesarini, D. (2016). Genetic variants associated with subjective well-being, depressive symptoms, and neuroticism identified through genome-wide analyses. *Nature genetics, 48*(6), 624–633. https://doi.org/10.1038/ng.3552

Patten, S. B., Williams, J. V. A., Lavorato, D. H., Wang, J. L., Jetté, N., Sajobi, T. T., ... & Bulloch, A. G. M. (2018). Patterns of association of chronic medical conditions and major depression. *Epidemiology and psychiatric sciences, 27*(1), 42-50.

Renner, L. M., Reese, L. M. S., Peek-Asa, C., & Ramirez, M. (2015). Reporting patterns of unidirectional and bidirectional verbal aggression and physical violence among rural couples. *Journal of family violence, 30*(8), 1069-1078.

Revenson, T. A., Marín-Chollom, A. M., Rundle, A. G., Wisnivesky, J., & Neugut, A. I. (2016). Hey Mr. Sandman: Dyadic effects of anxiety, depressive symptoms and sleep among married couples. *Journal of behavioral medicine, 39*(2), 225-232.

Roberson, P. N., Norona, J. C., Lenger, K. A., & Olmstead, S. B. (2018). How do relationship stability and quality affect wellbeing?: Romantic relationship trajectories, depressive

symptoms, and life satisfaction across 30 years. *Journal of Child and Family Studies, 27*(7), 2171-2184.

Scharfe, E. (2003). Stability and change of attachment representations from cradle to grave. In: Johnson, S. M., Whiffen, V. E., editors. *Attachment processes in couple and family therapy*. New York, US: Guilford, 64–84.

Scharfe, E. (2007). Cause or consequence?: Exploring causal links between attachment and depression. *Journal of social and clinical psychology, 26*(9), 1048-1064.

Schumacher, J. A., & Leonard, K. E. (2005). Husbands' and wives' marital adjustment, verbal aggression, and physical aggression as longitudinal predictors of physical aggression in early marriage. *Journal of consulting and clinical psychology, 73*(1), 28.

Segrin, C., & Dillard, J. P. (1992). The interactional theory of depression: A meta-analysis of the research literature. *Journal of Social and Clinical Psychology, 11*(1), 43-70. doi:http://dx.doi.org/10.1521/jscp.1992.11.1.43

Sharabi, L. L., Delaney, A. L., & Knobloch, L. K. (2016). In their own words: How clinical depression affects romantic relationships. *Journal of Social and Personal Relationships, 33*(4), 421-448.

Sieberer, M., Maksimović, S., Ersöz, B., Machleidt, W., Ziegenbein, M., & Calliess, I. T. (2012). Depressive symptoms in first-and second-generation migrants: A cross-sectional study of a multi-ethnic working population. *International Journal of Social Psychiatry, 58*(6), 605-613.

Simpson, J. A., Rholes, W. S., Campbell, L., Tran, S., & Wilson, C. L. (2003). Adult attachment, the transition to parenthood, and depressive symptoms. *Journal of Personality and Social Psychology, 84*, 1172– 1187. doi:10.1037/0022-3514.84.6.1172

Spaderna, H., Schmukle, S. C., & Krohne, H. W. (2002). Bericht€uber die deutsche Adaptation der State-Trait Depression Scales (STDS). *Diagnostica, 48*(2), 80–89. doi:10.1026//0012-1924.48.2.80

Sperlich, S., Arnhold-Kerri, S., & Geyer, S. (2011). What accounts for depressive symptoms among mothers? The impact of socioeconomic status, family structure and psychosocial stress. *International journal of public health, 56*(4), 385.

Stice, E., Burton, E. M., & Shaw, H. (2004). Prospective relations between bulimic pathology, depression, and substance abuse: unpacking comorbidity in adolescent girls. *Journal of consulting and clinical psychology, 72*(1), 62.

Tampubolon, G., & Maharani, A. (2017). When did old age stop being depressing? Depression trajectories of older Americans and Britons 2002–2012. *The American Journal of Geriatric Psychiatry, 25*(11), 1187-1195.

Thom J, Kuhnert R, Born S et al. (2017) 12-month prevalence of self-reported medical diagnoses of depression in Germany. *Journal of Health Monitoring 2*(3):68–76 DOI 10.17886/RKI-GBE-2017-069

Thonnissen, C., Wilhelm, B., Fiedrich, S., Alt, P., & Walper, S. (2014). *Scales manual.* (Data File Version 5.0.0) [Datafile]. Cologne, Germany: GESIS Data Archive.

von dem Knesebeck, O., Pattyn, E., & Bracke, P. (2011). Education and depressive symptoms in 22 European countries. *International journal of public health, 56*(1), 107-110.

Walper, S. (1997). Individuation im Jugendalter - Skalenanalyse zum Münchner Individuationstest Berichte aus der Arbeitsgruppe "*Familienentwicklung nach der Trennung*" (Vol. 23). München: Ludwig-Maximilians-Universität.

Walper, S., Schwarz, B. & Jurasic, S. (1996). Entwicklung und Erprobung des Münchner

      Individuationstests Berichte aus der Arbeitsgruppe "*Familienentwicklung nach der*

      Trennung" (Vol.8). München: Ludwig-Maximilians-Universität.

Wei, M., Heppner, P., & Mallinckrodt, B. (2003). Perceived coping as a mediator between

      attachment and psychological distress: A structural equation modeling approach. *Journal*

      of Counseling Psychology, 50, 438 – 447. doi:10.1037/0022-0167.50.4.438

Whisman, M. A. (2017). Interpersonal Perspectives on Depression. In DeRubeis, R. J. &

      Strunk, D. R. *The oxford handbook of mood disorders* (p. 167-178). Oxford University

      Press.

Wiebe, S. A., & Johnson, S. M. (2016). A review of the research in emotionally focused therapy

      for couples. *Family Process, 55*(3), 390-407.

Wittenborn, A. K., Liu, T., Ridenour, T. A., Lachmar, E. M., Mitchell, E. A., & Seedall, R. B.

      (2019). Randomized controlled trial of emotionally focused couple therapy compared to

      treatment as usual for depression: Outcomes and mechanisms of change. *Journal of*

      marital and family therapy, 45(3), 395-409.

Zung, W. W. K. (1986). Zung self-rating depression scale and depression status inventory. In N.

      Sartorious & T. A. Ban (Eds.), *Assessment of depression* (pp. 221–231). Berlin: Springer.

Zimmerman, F. J., & Katon, W. (2005). Socioeconomic status, depression disparities, and

      financial strain: what lies behind the income-depression relationship?. *Health economics,*

      14(12), 1197-1215.