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The current study investigated the linkages between marital quality and anxiety and marital instability and anxiety using meta-analytic techniques. 50 studies with a total of $k = 297$ effects published between the years 2000 - 2019 were analyzed. Overall marital quality, which subsumes several underlying concepts, including marital behaviors, marital adjustment, marital distress, and marital satisfaction, was assessed. Additional post hoc analyses examined the association between each underlying marital quality indicator and anxiety separately. It was expected that better overall marital quality would be associated with less anxiety. Marital instability was hypothesized to be associated with more anxiety. As expected, significant associations between all marital factors and anxiety were found. Higher overall marital quality was associated with lower anxiety. Post hoc analyses revealed that higher positive marital behaviors (e.g., communication, intimacy), marital adjustment, and marital satisfaction were associated with lower anxiety. Similarly, lower negative marital behaviors (e.g., criticism) and marital distress were associated with lower anxiety. Finally, an association between experiences of marital instability (i.e., divorce or separation) and higher anxiety was found. Additional moderating variables, including study design, direction of longitudinal associations, gender, operationalization of anxiety, treatment of the marital quality factor, type of marriage, sample location, and the use of control variables were examined. Implications of this research and directions for future research were discussed.

EXAMINING THE LINKAGES BETWEEN MARITAL QUALITY AND ANXIETY

AND MARITAL INSTABILITY AND ANXIETY:

A META-ANALYTIC REVIEW

by

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CHAPTER I

INTRODUCTION

Associations between marital quality and anxiety as well as between marital instability and anxiety have been demonstrated in the empirical literature (Goldfarb, Trudel, Boyer, & Preville, 2007). Research has shown that marriage may protect against psychopathology, including anxiety (Scott et al., 2010). More than marital status alone, however, previous research has emphasized that the quality of marital relationships may predict experiences of anxiety (Goldfarb et al., 2007). Specifically, individuals who report marital distress are at higher risk for experiencing anxiety symptoms or disorders (Whisman, 2007). Additionally, marital instability, including divorce and separation, has been linked to higher rates of anxiety (Chatav & Whisman, 2007; Wade & Pevalin, 2004). In contrast, empirical evidence has shown that anxiety can impact marital quality and lead to marital instability. Anxiety has also been linked to more negative marital interactions (Zaider, Heimberg, & Iida, 2010) and lower overall marital quality (Gana et al., 2016). Furthermore, anxiety has been found to increase risk for marital instability (Mojtabai et al., 2017). Although the bulk of the empirical research has tested the impact of marital quality and marital instability on anxiety, or the impact of anxiety on marital quality and marital instability, most scholars agree that the associations between marital quality or marital instability and anxiety exist in both directions. Marital scholars have

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conceptualized marital quality to include various underlying concepts that inform the overall quality of marriage. For example, specific marital behaviors, marital adjustment, marital distress, marital satisfaction, and divorce proneness are all considered aspects of overall marital quality. Marital instability, in contrast, has been primarily conceptualized as actual disruptions to the marriage, including separation and divorce.

Meta-analytic reviews have examined the associations between marital quality and other mental health factors, including depression and other indicators of personal well-being (e.g., Proulx, Helms, & Buehler, 2007; Whisman, 2001). These studies have demonstrated that higher marital quality is associated with better overall well-being. Additionally, these studies have demonstrated that the strength of the associations differ if marital quality or well-being is treated as the dependent variable. Proulx et al. (2007) found that the strength of the association from marital quality to well-being was stronger than the association in the opposite direction. No known study to date has empirically summarized the linkages between marital quality or marital instability and anxiety through meta-analytic techniques. Thus, although previous research has examined these linkages in individual studies, no meta-analytic reviews of this literature exist in which this body of work is summarized, nor have the strength of the associations in each direction been examined in a comprehensive manner.

The current study aims to address this gap in the literature by using meta-analytic techniques to analyze peer-reviewed studies published between 2000 - 2019 that examine the strength of the associations between marital quality or marital instability and anxiety. Specifically, the current study intends to examine both cross-sectional and longitudinal

studies that have assessed different facets of marital quality (e.g., conflict, satisfaction) and marital instability (e.g., divorce, separation), and their association with spouses' anxiety (e.g., symptoms and clinical disorders). Separate analyses will be used to examine the association between overall marital quality (i.e., including all underlying marital quality indicators) and anxiety and marital instability and anxiety. The strength of the associations in each direction (i.e., from anxiety to marital quality and instability and from marital quality and instability to anxiety) will be compared statistically. Additional post hoc analyses will examine the associations between each underlying marital quality indicator (i.e., marital behaviors, marital adjustment, marital distress, and marital satisfaction) and anxiety.

Additionally, moderators will be included in the current study to examine differences in the strength of the associations between marital quality or instability and anxiety. Research has shown that the associations between marital quality and well-being differs based on if the study design was longitudinal or cross-sectional (Proulx et al., 2007). The current study extends this prior research to examine the strength of the association between marital quality or instability and anxiety based on study design. Relatedly, using only longitudinal effects, the current study will examine if the strength of the association differs based on which factor is treated as the dependent variable. Research has also shown that the association between marital quality and anxiety may differ based on the gender of the spouse with anxiety. Anxiety present in husbands, for example, has been found to be more detrimental to marriage than anxiety present in wives (Rehman et al., 2015; Whisman et al., 2018). To examine these gendered

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differences, gender will be included as a potential moderator. The literature has conceptualized anxiety as anxiety symptoms (i.e., continuous) and as the presence or absence of anxiety disorders (i.e., categorical). The current study will examine if any differences in the associations between marital quality or instability exist as a function of how anxiety was operationalized.

Additionally, meta-analytic research has found that the strength of the association between marital quality and well-being differs based on if negative (e.g., conflict) or positive (e.g., warmth) indicators of marital quality were assessed. Additionally, most previous research examining the associations between marital quality or instability and anxiety has relied on samples of couples in their first-marriages (e.g., Scott et al., 2010). Fewer studies have examined if the association between marital quality or marital instability and anxiety remains for those who have remarried (e.g., Hiyoshi, Fall, Netuveli, & Montgomery, 2015). Thus, the current study will examine treatment of the marital indicator (i.e., positive or negative marital factor) and marital type (i.e. first marriage or remarriage) as moderating variables that may change the strength of the association between marital quality or instability and anxiety.

Additionally, because the literature is informed by empirical studies conducted with samples drawn from couples who reside in different geographical areas, the current study examines if sample location moderates the association between marital quality or instability and anxiety. Specifically, the current study examines if differences in the associations between marital quality or instability and anxiety exist in empirical studies that utilized samples drawn from within or outside the United States. This will allow the

current study to examine marital quality or instability and anxiety in context, which might differ based on the societal influences and expectations regarding marriage and/or the experience of anxiety. Finally, marital quality, marital instability, and anxiety have all been linked to additional variables in the literature, such as depression and substance use (e.g., Cranford et al., 2011; Homish et al., 2009; Horn et al., 2013; Proulx et al., 2007). To examine if the strength of the associations between marital quality or instability and anxiety differ in studies that did or did not control for additional variables, the current study will use control variables as additional moderators. In summary, study design (i.e., cross-sectional or longitudinal), the direction of the longitudinal associations (i.e., if anxiety is treated as the independent or dependent variable), gender, operationalization of anxiety, treatment of marital quality factor (e.g., positive or negative marital quality indicator), sample location (i.e., US or other country), whether the effect was comprised of individuals in their first marriages or individuals that have remarried, and whether the effect controlled for depression, anxiety, or substance use will be examined as moderating variables in the current study.

First, a detailed description of key constructs and a conceptual model will be provided, followed by a discussion of theoretical models, a review of the empirical literature, and an outline of methods and data analytic procedures for the current study. In this work, marital quality will be conceptualized as an overarching construct that subsumes a variety of aspects of marital functioning and satisfaction that have been examined in the literature. Divorce proneness, or the ongoing process of declining marital quality that leads to the consideration and action toward divorce, is also considered an

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aspect of overall marital quality. Additionally, the term marital instability will be used to refer to indicators of marital disruption or dissolution including divorce and separation. The terms spouse and partner will be used interchangeably to refer to the individuals who are part of a marital dyad. A detailed conceptualization of anxiety symptoms and specific anxiety-related disorders will also be presented. Descriptive and diagnostic information for various disorders will be outlined, including Generalized Anxiety Disorder, Social Anxiety Disorder, Panic Disorder, Agoraphobia, and Specific Phobia. Additionally, commentary on the use of broad anxiety symptomatology in the empirical literature will be noted.

Two theoretical models that inform an understanding of the associations between the key constructs of marital quality or marital instability and anxiety will be presented. The Vulnerability-Stress-Adaptation model (VSA; Karney & Bradbury, 1995) and the Marital Discord Model of Depression (Beach, Sandeen, & O'Leary, 1990) will be discussed to inform an understanding of the longitudinal links between the constructs. The VSA model has been used to conceptualize how individual level spousal factors (e.g., anxiety) may impact couples' ability to effectively cope, which in turn impacts marital quality and may lead to marital instability. The Marital Discord Model of Depression (Beach et al., 1990), which has been used to demonstrate how the marital relationship can impact psychological functioning, namely depressive symptoms, provides additional theoretical support to inform an understanding of the directionality of the association between marital quality or instability and anxiety. Each theoretical model postulates the direction of effects between marital quality or instability and anxiety in

opposite directions. Together, these theoretical models provide a theoretical base to hypothesize on the nature and directionality of these associations.

Next, a review of the empirical literature that has assessed the connections between marital quality or marital instability and anxiety will be provided. Guided by theory and previous research, research questions and hypotheses will be presented and used to inform the meta-analysis. Thus, the current study aims to synthesize empirical research published between 2000 – 2019, a twenty year period spanning the first two decades of the 21st century, that has examined the associations between marital quality or marital instability and anxiety using meta-analytic techniques. Meta-analytic studies provide a comprehensive statistical summary of previous empirical findings, which offers more power and generalizability to the findings (Card, 2010). Additionally, meta-analyses can be used to examine inconsistencies in previous research and provide a more reliable estimate of effect sizes (Card, 2010). Methodological concerns, including study selection, data collection and coding, and a data analytic plan will be presented.

Description of Key Constructs

The overarching focus of the current study is to examine the linkages between marital quality and anxiety and marital instability and anxiety using meta-analytic techniques. Each of these key constructs are broad, both in conceptualization and operationalization. For example, marital quality is a term that researchers have used for a variety of indicators including marital behaviors and interactions between spouses, marital adjustment, marital satisfaction, and other indicators of marital functioning (e.g., love, warmth, admiration, resentment). Similarly, anxiety has been conceptualized as

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differing levels of symptoms (which may vary across clinical thresholds), or as specific

disorders, such as Generalized Anxiety Disorder. In some cases, the term anxiety has

been used to provide broad and general information that is relevant to both anxiety

symptoms and specific anxiety disorders (e.g., presenting theoretical considerations

related to anxiety). The following sections will describe, in more detail, each of the key

constructs in the current study, including multiple indicators of marital quality and

marital instability. Additionally, symptoms of anxiety and all specific anxiety disorders,

including Generalized Anxiety Disorder, Social Anxiety Disorder, Panic Disorder,

Agoraphobia, and Specific Phobia, will be explained in the following sections.

Marital Quality

Scholars have distinguished core principles related to relationship science (e.g.,

Finkel, Simpson, & Eastwick, 2017). These concepts are present in various theoretical

models and provide a basis for understanding relationships. One such principle, for

example, is the tendency for couples to evaluate their partners and the overall quality of

their relationships (Finkel, Simpson, & Eastwick, 2017). Thus, conceptualizing what

constitutes a "good marriage" is important for theory development, research, and practice

(Carroll et al., 2011; Knapp & Lott, 2010). This conceptualization, however, differs

across disciplines, scholars, and individual studies. For example, marital

satisfaction/dissatisfaction, marital success/distress, marital adjustment/maladjustment,

and other terms have been used interchangeably with marital quality. Importantly,

although related, these constructs are conceptually distinct (Knapp & Lott, 2010).

Accordingly, contemporary scholars have called for greater conceptual clarity in the

marital literature and suggest that marital quality be treated as an overarching, umbrella term used to describe spouses' overall marital functioning, which may include positive and negative aspects of marital interactions or behaviors (e.g., conflict, communication), perceived satisfaction/dissatisfaction, marital adjustment, or other general measures of overall quality (Fincham & Bradbury, 1987; Helms, 2013; Huston, 2000). In this manner, there is the potential for a variety of conceptually distinct indicators of marital quality to be subsumed under the marital quality descriptor.

Previous literature has described couples with low marital quality as discordant couples (i.e., couples experiencing marital discord), distressed couples, and other broad terms. For example, previous research has used marital discord to describe couples experiencing marital difficulties and presenting for marital therapy. These couples are described as engaging in more negative behaviors and interactions than those in higher quality marriages (e.g., Gottman, 1993). Marital quality is often assessed through self-report measures gathered from spouses including spouses' reports of their thoughts, feelings, and behaviors regarding specific aspects of their marital functioning. In addition, observational methods have been used to assess marital quality in laboratory (e.g., Gottman, 1993) or home settings (e.g., Williamson, Hanna, Lavner, Bradbury, & Karney, 2013) by coding for communication patterns, emotions, and other indicators of marital quality. Researchers have critiqued the primary use of cross-sectional data to examine these indicators of marital quality and have emphasized the need for more longitudinal work to inform research, theory, policy, and treatment (Karney & Bradbury, 1993). Taken together, this literature underscores the current treatment of marital quality

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as an umbrella term that encompasses marital behaviors, marital adjustment, marital

distress, and marital satisfaction.

Marital behaviors. Marital behaviors elucidate functional processes within a

marriage that help inform broader marital quality. Marital behavior is, therefore, an

indication of marital experiences between spouses, such as patterns of behaviors, or

reciprocal interactions between spouses. These marital behaviors are best understood in

context, with an emphasis on the broader ecological context that spouses reside within

(e.g., Helms, 2013; Huston, 2000). Scholars have critiqued marital research for focusing

mainly on negative marital behaviors, such as conflict (Fincham & Beach, 2010a).

Moving away from this deficit-based approach, marital behaviors now have been

conceptualized into positive and negative dimensions (Helms, 2013; Huston, 2000).

Positive marital behaviors may include warmth, forgiveness, support, positive

communication, affection, empathy, commitment, sensitivity, active listening, intimacy,

and companionship (e.g., Fincham & Beach, 2010a; Gottman, 1993; Helms, 2013;

Huston, 2000). Negative marital behaviors, in contrast, include more negative interaction

patterns or behaviors, such as conflict, negativity, hostility, criticism, contempt,

defensiveness, withdrawal, negative affect, and violence (e.g., Gottman, 1993; Helms,

2013; Huston, 2000).

To measure marital behavior, scholars have observed spousal interactions to code

for specific behavioral cues. For example, scholars have observed marital dyads

discussing a marital conflict or the events of their day in a laboratory setting (e.g.,

Bradbury & Fincham, 1992; Conger et al., 1986; Gottman, 1993; Gottman, Markman, &

Notarius, 1977; Huston, 2000; Karney & Bradbury, 1997). Relatedly, couples have been observed in more naturalistic settings, such as in their homes, to examine communication patterns in context (Williamson et al., 2013). Couples' interactions may be coded for displays of specific emotions, facial expressions, content of discussion, affect, collaborative problem solving, and other verbal or nonverbal behaviors. These interactions are coded based on content of the discussion, nonverbal communication and behaviors, and context (i.e., situation, aspects of marital quality), which provides a more nuanced understanding of marital interactions in context (Gottman et al., 1977). Specific coding procedures have been developed for consistent coding of these interactions and multiple coders have been used to ensure reliability. Technological advances in the last three decades, such as video recording and transcription services, have made it quicker and easier to code and analyze these interactions (Gottman & Notarius, 2000).

In addition to observing and coding marital interactions, spouses have been asked to self-report on their own and their spouses' marital behaviors (e.g., Dehle & Weiss, 2002; Gana et al., 2016; Whisman, Robustelli, & Labrecque, 2018). For example, spouses may be asked to report on the frequency that they experience conflict with their spouse, or subjectively rate the quality of their interactions and other behaviors. Self-reported data has been gathered using interviews or questionnaires completed once (i.e., cross-sectional) or multiple times (i.e., longitudinal). Some scholars have utilized ecological momentary assessment data (i.e., daily diaries) to examine specific marital behaviors that occur in context (e.g., Huston, 2000; Zaider et al., 2010). Marital behaviors are often used to predict changes in marital quality and marital stability longitudinally

(e.g., Bradbury & Karney, 1993; Gottman, 1993; Karney & Bradbury, 1995). Overall, marital behaviors are one dimension of marital quality.

  Marital adjustment. Marital adjustment refers to couples' ability to adapt and adjust to their new roles as spouses (Burgess & Cottrell, 1939; Huston, 2000; Knapp & Lott, 2010). This adjustment requires the couple to learn to work as a team, co-exist, have better and more frequent communication, effectively interact, and adapt to married life. Huston (2000) defined marital adjustment as "a process that takes place over time through which spouses seek to adapt to each other" (p. 307). This term is rooted in early work by Burgess and Cottrell (1939) that deemed a well-adjusted marriage to be "defined as a marriage in which the attitudes and acts of each of the partners produce an environment which is favorable to the functioning of the personality of each [spouse]" (p. 10).

  Marital adjustment is often measured via self-report questionnaires, such as with the Dyadic Adjustment Scale (DAS; Spanier, 1976) and the Marital Adjustment Test (MAT; Locke & Wallace, 1959). For example, Dehle and Weiss (2002) used the DAS to examine associations between anxiety symptoms and marital adjustment across time. The DAS provides an overall marital adjustment score, with results ranging on a continuum from well-adjusted to distressed (Beach & Gupta, 2005). The DAS has four subscales: satisfaction, consensus, cohesion, and affectional expression (South, Kruger, & Iacono, 2011; Spanier, 1979). Various subscales of the DAS are often used as indicators of other facets of marital quality, such as marital satisfaction (South et al., 2011). Related to this use of marital quality scales, scholars have critiqued assessment scales that have an

overlap of constructs that are conceptualized to measure different marital phenomena (Fincham & Bradbury, 1987). Some marital assessment tools aim to measure and compare different marital experiences (e.g., communication, dyadic adjustment) but have overlapped in areas of assessment. For example, the Marital Adjustment Test (MAT, Locke & Wallace, 1959) and the Dyadic Adjustment Scale (DAS; Spanier, 1979) both include items that assess various indicators of marital quality, such as global evaluations of marital happiness and specific marital behaviors (Bradbury, Fincham, & Beach, 2000; Fincham & Bradbury, 1987). Empirical studies that have used these assessment tools to compare with other indicators of marital quality (e.g., other behaviors such as communication) might have reported associations that are inflated or biased. Fincham and Bradbury (1987) stated that, "the overlapping content of items across inventories, combined with consistency in self-presentation, could account for a substantial portion of the [reported correlations]" (p. 801). In other words, using assessment methods that lack conceptual clarity and construct distinction may lead to an inflation of associations in the empirical literature (Fincham & Bradbury, 1987). These critiques highlight the complex nature of this literature and the importance of conceptual clarity in research and theory development related to marital quality.

In the domain of empirical research, marital adjustment has been examined in relation to anxiety. For example, Whisman (2001) examined the association between reported marital adjustment and various mental health disorders, including diagnosed depression and anxiety. It was found that average self-reported marital adjustment for those with anxiety was lower than for those without the disorder (Whisman, 2001). In

other words, those with diagnosed anxiety were more likely to have trouble adjusting to married life. Similarly, Huston (2000) posited that successful marital adjustment, or the adaptation to married life, is a predictor of subsequent marital functioning, including perceptions of marital quality and the overall stability of the marriage. Therefore, marital adjustment is conceptualized as one indicator of overall marital quality.

Marital distress. Most often used to demonstrate broad marital difficulties across domains, marital distress may be used to describe difficulties in marital functioning. For example, distressed couples are often described as those who have low levels of marital adjustment or satisfaction. For example, the term non-distressed couples have often been used to describe couples who do not report dissatisfaction with their marriage (Bradbury et al., 2000). Contemporary scholars challenge this view of distress and theorize that "factors that lead to marital distress may not be the simple inverse of factors that lead to a satisfying relationship" (Bradbury et al., 2000, p. 973). Nonetheless, individuals who have low levels of marital adjustment as measured by the DAS have often been labeled "distressed." Marital distress has also been used as a term to define the presence of marital problems broadly (Fincham, Bradbury, Arias, Byrne, & Karney, 1997). Thus, marital distress has been used to broadly describe couples' overall marital functioning. For example, Baucom and Atkins (2012) suggested that distressed couples are unable to effectively collaborate, adapt, and interact, which reduces intimacy and increases negative marital interactions such as conflict. Marital distress has been linked to evaluations of one's spouse and marriage. For example, Gottman (1993) found that spouses who experience marital distress are more likely to believe that any negative

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characteristics observed in their partner are stable aspects of their partner's personality, whereas non distressed spouses are more likely to down-play negativity as fleeting and not characteristic of their partner. These evaluations of their partner and the marriage are related to the quality and ongoing stability of the marital relationship (Gottman, 1993).

Marital satisfaction. Although marital satisfaction is often used interchangeably with marital quality in the literature, it is a distinct concept (Knapp & Lott, 2010). Marital satisfaction, one of numerous indicators of overall marital quality, is conceptualized here as subjective judgments, evaluations, or feelings of satisfaction in one's marriage (Bradbury, Fincham, & Beach, 2000; Helms, 2013). Like many other indicators of overall marital quality, this subjective assessment of marriage is often derived from self-reports about satisfaction and happiness from the perspective of each spouse. Common measurement tools include a satisfaction subscale of the Marital Adjustment Test (MAT; Locke & Wallace, 1959), the Kansas Marital Satisfaction Scale (KMS; Schumm et al., 1986), and a subscale of the DAS (Spanier, 1979). For example, Rehman, Evraire, Karimiha, and Goodnight (2015) used a 10-item subscale of the DAS to measure marital satisfaction in relation to anxiety across time. Similarly, Renshaw, Blais, and Smith (2010) used the MAT to examine marital satisfaction in their study about anxiety, depression, and angry hostility. In some cases, marital satisfaction is assessed with questionnaires developed for each study, or with single-item indicators assessing satisfaction or happiness in the marriage (e.g., Whisman et al., 2000). Scholars have emphasized that marital satisfaction should be viewed as a longitudinal trajectory rather than subjective evaluations at only one point in time (Bradbury et al., 2000). Thus, more

longitudinal research examining changes in marital satisfaction across time is needed to conceptualize the changes in satisfaction across the course of marriage (Bradbury et al., 2000).

  Divorce proneness. Although singular events of marital instability (i.e., separation or divorce) are included in the research most often, scholars have emphasized that marital instability is a process that occurs over time (Gottman, 1994; Moore & Buehler, 2011). This process is often referred to in the empirical literature as divorce proneness (e.g., Gottman, 1994; Moore & Buehler, 2011). Prior to ending a marriage through divorce or separation, marital quality may decline, and spouses may begin to question the longevity of their marriage and consider divorce. Rather than a singular event, therefore, divorce is often considered as a process that occurs over time. In fact, Demo and Fine (2009) posit "that divorce is better understood as a process that unfolds over several years, a process that typically begins years before the legal divorce and extends for years following legal separation and dissolution" (p. 14). Thus, the process of considering divorce or making plans to divorce has been termed divorce proneness (Gottman, 1994) and is conceptualized as an underlying aspect of marital quality. As spouses experience decreases in their perceived overall marital quality, they may begin to question the ongoing stability of their marriage. This process may also include discussing divorce with close friends or one's spouse and seeking legal advice (Moore & Buehler, 2011). Divorce proneness is aligned with Gottman's (1993, 1994) Cascade Model of Marital Dissolution. This model postulates that the process of divorce starts with declines in marital satisfaction and quality (i.e., increased distress), which is chronologically

followed by considering divorce, separating, and obtaining a legal divorce (Gottman, 1994). Conceptualizing divorce as a process that falls under the broader concept of marital quality has been supported in the empirical literature, which has demonstrated that steps leading up to divorce may begin years before the divorce occurs (Wade & Pevalin, 2004). This process can make it difficult to disentangle directionality and examine causality between constructs.

The empirical literature has not effectively investigated the connections between divorce proneness and anxiety. For example, Wade and Pevalin (2004) theorized that events leading up to divorce may relate to mental health outcomes over time, which was supported by their finding that individuals reported decreased overall mental health and well-being two years prior to divorce. Nonetheless, Wade and Pevalin (2004) did not assess spouses' thoughts, feelings, and consideration of divorce across time in relation with reported mental health. In general, research has not yet effectively examined divorce proneness and anxiety across time for marital dyads. Specifically, no known studies to date have examined the longitudinal process of divorce proneness in relation to anxiety. Because divorce proneness is an ongoing process of questioning the marriage, which may be accompanied by increased anxiety, this is a substantial gap in the literature. Because meta-analyses are limited by the constraints of previous research, the current study focuses primarily on empirical work that has tested the linkages between marital quality and anxiety and marital instability and anxiety without the inclusion of divorce proneness. Nonetheless, divorce proneness is mentioned here as a conceptual

consideration to theorize on the ongoing processes that may unfold in marital unions and

to make recommendations for future research.

Marital Instability

In contrast to the numerous indicators of marital quality, the measurement of

marital instability in the literature is more straightforward (Knapp & Lott, 2010).

Specifically, because marital instability often has an event that distinguishes individuals

into categories (e.g., continuously married, separated, divorced), it is often easier to

operationalize than the dynamic and overlapping indicators of marital quality.

Experiences of marital disruption or dissolution, including separation and divorce, are

conceptualized as marital instability. Marital quality and marital instability are related;

however, the constructs are distinct in conceptualization and operationalization.

Aspects of marital quality have been shown to predict marital instability. For

example, Gottman has demonstrated that specific marital behaviors increase risk for

subsequent divorce. Specifically, Gottman's Cascade Model of Marital Dissolution posits

that four interaction patterns, including criticism, defensiveness, stonewalling, and

contempt are predictive of subsequent divorce (Gottman, 1993, 1994; Gottman &

Gottman, 2017). Additionally, the ratio of positive and negative emotions and behaviors

from spouses during conflict and everyday interactions is highly predictive of subsequent

marital separation and divorce (Gottman, 1993; Gottman & Notarius, 2000). In addition

to narrow and specific indicators of marital quality, such as marital behavioral

interactions, overall marital quality is also a predictor of marital instability (Karney &

Bradbury, 1995). Specifically, as marital quality declines, the risk for marital instability

increases (Karney & Bradbury, 1995). Marital instability is, therefore, related to marital quality but is conceptually distinct.

The current study conceptualizes marital instability as an indicator of marital status as it pertains specifically to those who remain continuously married (i.e., stability) and those who have separated or divorced (i.e., instability). Thus, the actual act of divorce or separation can be assessed with demographic indicators or self-reported marital status. The following section will provide expanded conceptualizations about marital instability, which include aspects of divorce and separation.

Divorce and separation. In the empirical body of research, marital instability is often used to compare those that are continuously married, separated, or divorced. Marital instability has also been referred to as marital dissolution in the literature, which includes both divorce and separation. Similarly, marital stability may be used to delineate couples who have remained continuously married. For example, Chatav and Whisman (2007) compared individuals who were continuously married to those that had either separated or divorced. In the current study, the terms marital stability and instability are used to differentiate couples that are continuously married (i.e., stability) with those that are separated or divorced (i.e., instability). The use of the term marital instability is preferred for the current study over the term marital status, because marital status can also be used to differentiate between never married couples (i.e., single) from the other categories, which does not align with the focus of the current study.

There have been societal shifts in expectations regarding marriage which have led to changes in marital behaviors, such as increased rates of cohabitation, delayed

marriage, and increases in births to unmarried couples (Cherlin, 2009). Scholars have debated if cohabiting couples and partners' transitions in and out of cohabiting relationships should be included in the research on marriage-like relationships (e.g., Horn et al., 2013; Surra & Boelter, 2013; Yoon & Zinbarg, 2007). Because a consensus on how to differentiate married and cohabiting couples in the research has not been reached and because the bulk of research in this area has separated couples based on legal marital status, the current study focuses primarily on married individuals. Thus, marital instability will be used as a predictor and outcome variable related to anxiety.

Anxiety

It is also necessary to conceptualize the anxiety related factors that will be used in the current literature review and research. Broadly, the examination of anxiety will be limited to include symptoms and/or clinical diagnoses of anxiety. Additional symptoms and diagnoses that fall under these umbrella terms (e.g., Generalized Anxiety Disorder, Social Anxiety Disorder, Panic Disorder) will also be included.

With high prevalence, anxiety disorders are one of the most frequently diagnosed forms of psychopathology (Baxter, Scott, Vos, and Whiteford, 2013; Seehagen, Margraf, & Schneider, 2014; Valentiner, Fergus, Bhar, & Conybeare, 2014). According to the National Institute of Mental Health, 19.1% of adults suffer from anxiety disorders each year in America. Similarly, a global meta-analytic study estimated that 7.3% of adults suffer from anxiety worldwide (Baxter, Scott, Vos, and Whiteford, 2013). Although most people experience anxiety occasionally, for some people it is constant, overwhelming, or intense. Anxiety disorders are characterized by extreme fear and/or anxiety that is out of

proportion to the situation or threat (American Psychiatric Association; APA, 2013). "Fear is the emotional response to a real or perceived imminent threat whereas anxiety is the anticipation of future threat" (APA, 2013, p. 189). Although worry occurs along a continuum from normal to pathological, severe worry isn't enough for a diagnosis. Like worry, fear isn't always pathological. In many cases, fear is a developmentally and situationally appropriate response. For example, there are many fears experienced in infancy and early childhood that are developmentally normative, such as unfamiliar people, heights, separation from caregivers, and the dark (Seehagen et al., 2014). Normative fears align with individuals' developmental stage with those in early childhood having fears aligned with magical thinking, those in middle childhood beginning to fear injury and failure, and those in adolescence maintaining fears related to social evaluation (Seehagen et al., 2014). Although anxiety can be adaptive (i.e., signaling danger), "it may become overlearned or occur at inappropriate times such that it interferes with people's lives" (Baucom, Stanton, & Epstein, 2003, p. 57). In such cases, anxiety affects everyday life—causing physical symptoms, increasing stress, and impacting how people behave and think (APA, 2013). It can affect people's ability to manage their daily life, including their work, social life, and health. It can also impact their marriage.

Anxiety disorders. Many people may categorize themselves as "high worriers" without meeting full diagnostic criteria for an anxiety disorder (Stevens, Jendrusina, Sarapas, & Behar, 2013). People with anxiety disorders experience persistent and excessive fear or anxiety related to a variety of life events, objects, or situations (APA,

2013). Different anxiety disorders are associated with different anxiety-inducing

situations and experiences, but in general, all anxiety disorders cause considerable

distress. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) provides

diagnostic criteria used to assess specific anxiety disorders, including Generalized

Anxiety Disorder (GAD), Social Anxiety Disorder (SAD), Panic Disorder (PD),

Agoraphobia, and Specific Phobia (APA, 2013). There is a decent amount of

heterogeneity in the experience of anxiety disorders, with some disorders limited to

certain anxiety-provoking stimuli and others more diffuse and generalized. Nonetheless,

anxiety disorders and symptoms are all related to excessive fear, anxiety, and worry.

Anxiety disorders often co-occur with other psychiatric disorders, including additional

anxiety disorders, mood disorders, and substance use disorders (Valentiner et al., 2014).

The experience of multiple co-occurring disorders may compound the distress

experienced by those individuals in complex ways that has yet to be effectively

disentangled in the empirical body of research.

     Generalized Anxiety Disorder (GAD). GAD is a diagnosis characterized by

chronic and widespread anxiety surrounding multiple everyday life experiences (APA,

2013). Specifically, those with GAD experience repetitive and uncontrollable thoughts or

anxiety about things that could go wrong in typical everyday events. This worry may be

related to everyday responsibilities at work, finances, family, health, relationships, and

other stressors (Stevens et al., 2013). Individuals often worry about the people in their

lives, which may include worrying about unforeseen health issues and other catastrophes

their close friends and families could experience. The fear and anxiety associated with

GAD isn't limited to any one focal fear-inducing stimuli but is widespread and enduring. Individuals with GAD spend most of their time experiencing this anxiety, which can significantly impact their ability to function on a day-to-day basis. GAD is accompanied by physical symptoms such as fatigue, restlessness, lack of concentration, irritability, muscle tension, and sleep disturbances (APA, 2013; Stevens et al., 2013).

To warrant a diagnosis, six specific criteria must be met. Individuals with GAD must experience prolonged symptoms (i.e., most days for 6 or more months), struggle to control their worry, and experience multiple physical symptoms (i.e., 3 or more) that cause impairment and distress, which are not better explained by the use of a substance or another disorder (Criterion A – F; APA, 2013). Prevalence rates of GAD range between 1.6 – 13.4% depending on the study, prevalence type (i.e., 12-month, lifetime, 1-month), and type of sample (i.e., community vs clinical) (Stevens et al., 2013). APA (2013) estimated the prevalence of GAD in adults to be 2.9%. GAD is more common among females, with a female to male ratio of 2:1 (APA, 2013). The disorder is also more common among White individuals, unemployed individuals, and those that have been divorced, widowed, or separated (Stevens et al., 2013).

GAD is commonly diagnosed with co-occurring major depressive disorder and other anxiety disorders, including social anxiety, panic disorder, agoraphobia, and specific phobias (Stevens et al., 2013). Females diagnosed with GAD are more likely to have comorbid diagnoses of additional anxiety disorders or depressive disorders (APA, 2013). Males with GAD, in contrast, may be more likely to struggle with substance use

disorders (APA, 2013). Earlier onset of GAD is associated with more severe

comorbidities (APA, 2013).

  Social Anxiety Disorder (SAD). Humans value social connection so greatly that

isolation is consistently used as a punishment, such as timeouts or prison sentences

(Hofmann, Aka, & Piquer, 2013). This emphasis on the social world paves the way to

understanding SAD. Unlike GAD, the anxiety associated with SAD is specific to social

situations. Thus, SAD is characterized by severe fear and anxiety associated with social

interactions, especially if these interactions may result in some form of judgment (APA,

2013).

  The DSM-5 outlines diagnostic criteria for SAD with ten individual requirements

(Criterion A – J; APA, 2013). These criteria outline consistent and prolonged (i.e., > 6

months) fears related to social evaluation, which often lead to avoidance of social

situations. Individuals with SAD fear that social situations may lead to negative

judgment, embarrassment, or rejection. These fears must be out-of-proportion or

excessive for the situation, cause impairment, and not be better explained by other

disorders or the use of substances. People with SAD make attempts to avoid social

interactions and situations, which are a large part of our society. Failing to interact in the

social world has daily consequences, such as social isolation and difficulty maintaining

obligations in life roles (e.g., work, family, intimate relationships).

  On average, 12-month prevalence for SAD is 7%, but prevalence decreases with

age (APA, 2013). Social anxiety is largely culturally-based, with different social

expectations in different cultures (Valentiner et al., 2014). Like other anxiety disorders,

SAD often has additional comorbid or co-occurring disorders. Women are more likely to

have SAD that is comorbid with internalizing disorders, such as depressive or anxiety

disorders (APA, 2013). Men are more likely to have SAD that is comorbid with

externalizing disorders, such as oppositional defiant disorder or conduct disorder. SAD

has been associated with many social difficulties, which is evidenced by lower rates of

marriage, and reported relational issues with friends, family, and intimate partners

(Hofmann et al., 2013).

      Panic Disorder (PD). Panic disorder (PD) is prevalent in about 2-3% of

adolescents and adults (APA, 2013) and is characterized by unexpected panic attacks and

a fear of additional panic attacks occurring (Schmidt et al., 2014). Panic attacks are short

periods of extreme fear, discomfort, and arousal that intensify quickly and result in

multiple somatic and cognitive symptoms, such as increased heart rate, sweating,

dizziness, shortness of breath, and fear of dying (APA, 2013; Schmidt et al., 2014). The

DSM-5 categorizes panic attacks into two categories: unexpected and expected (APA.

2013). Unexpected panic attacks are just as they sound—they occur unexpectedly without

warning (Schmidt et al., 2014). Additionally, individuals with PD may have situational

panic attacks that may be expected during stressful situations (APA, 2013). To be

diagnosed with PD with DSM-5 criteria, individuals must experience recurring

unexpected panic attacks with at least four symptoms (for a full list of symptoms see

APA, 2013, p. 208). On top of the distress associated with the actual panic attacks (e.g.,

physical symptoms), people with PD experience constant worry about experiencing an

additional bout of panic. To this end, they often alter their daily routines in an ill-

informed attempt to avoid additional panic attacks. Like other disorders, panic disorder must not be caused by substance use or better explained by another disorder.

Experiencing panic attacks is an extremely overwhelming and stressful experience for individuals with PD. Many individuals make changes to their behaviors that they believe may reduce the likelihood of panic attacks (e.g., not going to certain locations where they have experienced a panic attack previously). These changes may have social, economic, and occupational consequences. For example, if an individual had a panic attack at work, they may be more likely to call in sick or miss days at work. If a panic attack occurs while driving, the individual may avoid driving alone (Baucom et al., 2003). All these symptoms limit what activities a person with PD can comfortably participate in each day and what support they may need from their spouse, family, or friends.

Additionally, because panic-related symptoms may also be present with more serious health concerns, such as heart attack, many individuals with PD believe that they have an undiagnosed health condition rather than believing the symptoms are psychologically derived (Baucom et al., 2003; Schimdt et al., 2014). This often leads to additional health care costs (e.g., seeking out second opinions, visiting the emergency room) and missing work or other activities (APA, 2013). PD is associated with the highest rate of medical visits of any anxiety-related disorder, especially if PD co-occurs with agoraphobia (APA, 2013). Relatedly, individuals with PD may miss important obligations (e.g., work, school) in order to attend doctor appointments or to go to the emergency room for their panic-related symptoms, which can ultimately lead to

unemployment (APA, 2013). These behavioral changes may also be difficult for those who interact with the individual, such as close friends and family or intimate partners.

Agoraphobia. Agoraphobia often co-occurs with PD and is characterized by debilitating fear of various public spaces, such as on public transportation, in stores, parking lots, and open spaces (APA, 2013). Individuals with Agoraphobia have anxiety that they will experience panic-related symptoms, intense embarrassment, or not be able to get out or get help in those settings (APA, 2013). Like PD, individuals with Agoraphobia often avoid the areas that they believe will cause them distress and panic. Aligned with diagnostic criteria for other anxiety disorders, the fear must be excessive (i.e., out of proportion), prolonged (i.e., > 6 months), cause significant impairment, and must not be better explained by the use of substances or another disorder (APA, 2013). Women are three times more likely to experience PD and Agoraphobia (Marcaurelle, Bélanger, & Marchand, 2003). In addition to co-occurring with PD, Agoraphobia also commonly co-occurs with depressive disorders, misuse of alcohol and medications, substance use disorders, and Post Traumatic Stress Disorder (APA, 2013).

Due to their avoidance of public spaces, those with Agoraphobia may miss out on social events, important work opportunities, and other events that relate to broader life functioning (e.g., occupational, social, familial). Many individuals with Agoraphobia rely heavily on others to help with daily life tasks. In fact, APA (2013) reports that "more than one-third of individuals with Agoraphobia are completely homebound and unable to work." This can result in severe financial and social consequences, such as ongoing reliance on family members and inability to interact with the social world or maintain a

job. On top of this social isolation and dependence on others, people with Agoraphobia may strain their relationships with friends and family members as a result of this reliance on others. Without a strong and understanding support system, individuals with Agoraphobia may not receive the necessities needed for daily living (e.g., food, shelter). Because Agoraphobia is often comorbid with panic disorder or other anxiety disorders, additional impairments may be present.

      Specific Phobia. Finally, Specific Phobia diagnoses are reserved for individuals who have intense fears related to one or more stimuli, such as heights or animals (APA, 2013). Some specific fears are evolutionarily adaptive to keep people safe in certain rare situations by alerting people to potential danger (Adams, Sawchuk, Cisler, Lohr, & Olantunji, 2013). Disordered specific fears, in contrast, are irrational and cause significant impairment (Adams et al., 2013). About 50% of people will experience a specific fear during their lifetime, but most aren't extreme enough to warrant a diagnosis of specific phobia (Adams et al., 2013). Diagnostic criteria outline that individuals must experience intense, prolonged (i.e., > 6 months) and excessive (i.e., out of proportion) fear when they are exposed to the phobic stimulus, which must cause impairment and lead to active avoidance of the stimuli (APA, 2013). The fear must not be better explained by another disorder. In addition to these criteria, the fear experienced when exposed to the phobic stimulus is often accompanied by physiological arousal, such as increased heart rate (APA, 2013). Exposure to the fear-inducing stimulus may, therefore, result in a panic attack (APA, 2013).

Specific phobias are categorized by the anxiety-inducing stimuli. The categories included in the DSM-5 are animals, natural environment, blood-injection-injury, situations, and other (APA, 2013; Valentiner et al., 2014). For example, fear of thunderstorms would fall into the natural environment category, whereas fear of flying would be situational, and fear of medical injections would fall under the blood-injection-injury category (Adams et al., 2013). The most common specific phobia is the fear of heights (Adams et al., 2013). Other common specific phobias include snakes, spiders, closed spaces, flying, injections, and injuries (Adams et al., 2013). Prevalence rates are as high as 16% in the United States, depending on the age of the diagnosed individual, with younger individuals and females diagnosed more often (APA, 2013). Specific phobia is likely a secondary diagnosis that is comorbid with another psychological disorder (Adams et al., 2013), especially other anxiety disorders and personality disorders (APA, 2013). Specific phobias have been linked to missing 11% more days at work than those without the disorder (Adams et al., 2013). Additionally, self-reported mental health and quality of life are lower for those with specific phobia (Adams et al., 2013).

Anxiety symptoms. In addition to specific diagnostic criteria, many individuals experience subclinical levels of anxiety symptoms. Empirical research often differentiates between categorical and continuous operationalizations of anxiety factors. For example, the presence or absence of generalized anxiety disorder (GAD) could be used to differentiate marital outcomes for those with and without the disorder (i.e., categorical). In contrast, a continuous measurement of anxiety-related symptoms may be used to determine if severity of symptoms is related to marital outcomes (i.e., continuous). This

distinction in operationalization may also be made by clinical diagnosis (i.e., categorical) or symptom levels (i.e., continuous). Many studies use generalized measurements of anxiety, which result in continuous counts of anxiety-related symptoms instead of specific diagnostic labels. These measurements often include physical symptoms (e.g., increased heart rate, difficulty sleeping) and cognitive indicators (e.g., nervousness, fear of dying) of anxiety symptoms.

The current study will differentiate between these operationalizations of anxiety to capture the nuance in these associations when the meta-analytic data provide needed specific information. Overall, the conceptualization of anxiety is aligned with previous diagnostic, descriptive, and empirical publications. Conceptualizations that categorize broad facets of anxiety (e.g., anxiety symptoms) as well as more specific singular descriptions (e.g., Generalized Anxiety Disorder) will be included. In some cases throughout the literature review, broad terms such as mental health and psychiatric disorders will be used to reference broader psychological functioning. For example, some previous studies have examined multiple mental health disorders and will be referenced more generally. In other cases, more specific and detailed information will be presented, such as that related to specific anxiety-related disorders.

Conceptual Model

The proposed study connects previous theoretical models to examine the directional associations between marital quality or marital instability and anxiety. Previous literature has demonstrated marital quality and marital instability are predictors of subsequent anxiety (e.g., Chatav & Whisman, 2007; Goldfarb et al., 2007). In contrast,

anxiety has also been found to predict marital quality and marital instability (e.g., Dehle & Weiss, 2002; Mojtabai et al., 2017). Theoretical models have been used to theorize about these associations in one direction, but not both. For example, the Vulnerability-Stress-Adaptation Model (VSA; Karney & Bradbury, 1995) and the Marital Discord Model of Depression (Beach et al., 1990) theorize about the causal associations between marital quality or marital instability and anxiety in opposite directions. The current study will utilize aspects of both models to investigate the strength of the associations between marital quality or marital instability and anxiety in both directions.

Specifically, meta-analytic techniques will be used to synthesize prior empirical literature that has examined cross-sectional and longitudinal associations between marital quality and anxiety and between marital instability and anxiety by examining effect sizes reported in previous studies. The proposed study aims to (a) statistically summarize previously reported effect sizes to provide a synthesized analysis of the associations between marital quality or marital instability and anxiety, and (b) examine moderating variables that may impact the strength of these associations, including study design, direction of longitudinal associations (i.e., marital quality or instability predicting anxiety or vice versa), gender, operationalization of anxiety (i.e., continuous or categorical), treatment of the marital factor (e.g., positively or negatively oriented), type of marriage (i.e., first-marriage or remarriage), sample location, and the use of control variables to account for the influence of depression, substance use, and demographic factors.

See Figure 1.1 for the conceptual model. This model posits that there will be significant associations between marital quality and anxiety in both directions. It is

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hypothesized that low levels of marital quality will predict increases in anxiety. Similarly, high levels of anxiety are expected to predict decreased marital quality across time. Additionally, the model theorizes that there will be a significant relationship between marital instability and anxiety. It is hypothesized that marital instability (i.e., divorce or separation) will be associated with higher levels of anxiety. Finally, high levels of anxiety are expected to predict higher rates of marital instability.

CHAPTER II

THEORETICAL MODELS AND LITERATURE REVIEW

Theoretical and Conceptual Foundations

In this section theoretical perspectives that have been used to understand the linkages between marital quality or marital instability and anxiety will be described. The current study will focus primarily on two theoretical models that have been used to theorize about marriage; the Vulnerability-Stress-Adaptation Model (VSA; Karney & Bradbury, 1995) and the Marital Discord Model of Depression (Beach et al., 1990; Beach & Gupta, 2005). Brief outlines of these theoretical models, including brief mention of additional theories that have informed the current models, are provided. Next, how the models may be used to conceptualize the linkages between anxiety and marital quality, and anxiety and marital instability will be described. Finally, specific examples for how these models will inform the current study are discussed. Importantly, these models are presented only to outlined theoretical support for the directionality of the associations between marital quality or instability and anxiety. The current study is unable to examine the mediational effects present in these theories due to meta-analytic technique limitations. These theories, therefore, are simply presented to provide a theoretical basis to hypothesize about the direction of the associations between marital quality or instability and anxiety.

Vulnerability-Stress-Adaptation Model

Married couples are interdependent, meaning their lives are connected and they rely on each other. What happens to one spouse impacts the other spouse. This theory of interdependence has helped marital scholars explain how anxiety may impact marriage, including various aspects of marital quality and marital instability (Kelley, 1979). The vulnerability-stress-adaptation (VSA) model is informed by social exchange, behavioral, attachment, and crisis theoretical orientations (Demo & Buehler, 2013; Karney & Bradbury, 1995). Social exchange theory postulates that individual spouses weigh the costs and benefits of their marriage, which determine the ongoing stability of the marriage (White, Klein, & Martin, 2014). Specifically, individual spouses may consider the attractions of the relationship, barriers to leaving the relationship, their own expectations in marriage, and any available alternative options to the current marriage (White, Klein, & Martin, 2014). The attractions of their marriage are very likely related to ongoing behavioral exchanges and interactions between the spouses, which also predict the overall quality and stability of marriages (e.g., Gottman, 1993, 1994). Relatedly, attachment theory has been applied to adult relationships by focusing on internal working models that dictate individuals' expectations and behaviors (Clark, 2018). Specifically, attachment in adulthood is related to how individuals cope when their partner is unavailable and if individuals believe that their spouse can fulfill their needs (Karney & Bradbury, 1995; Selcuk, Zayas, & Hazan, 2010). The VSA model is also informed by stress and coping paradigms, such as the ABCX model (e.g., Hill, 1958; McCubbin & Patterson, 1983; Weber, 2011). The ABCX model outlines four major

components that impact family stress, including stressful events or stressors and their

associated hardships, existing family resources, perceptions of the stressor, and the

experience of crisis, which correspond to the model's A, B, C, and X components,

respectively (Hill, 1958; McCubbin & Patterson, 1983; Weber, 2011).

Components of each of these models were integrated to create the VSA model,

which describes how individual characteristics and couples' interactions interact with

stressful events to predict marital quality and marital stability (Karney & Bradbury,

1995). Although other theoretical models, like those briefly mentioned here, may also be

used to conceptualize the contextual factors that impact the association between marital

quality or instability and anxiety, the VSA model provides a detailed examination of the

changes in marital quality and stability across time and offers support for directional

hypotheses for the association (see Figure 2.1). Because these associations between

marital quality or marital instability and anxiety are often hypothesized to be directional

in nature, the VSA provides a useful path model for explicating how these indicators may

lead to increased risk for marital instability. The model focuses on enduring

vulnerabilities, stressful life events, and adaptive processes, which interact to impact

marital quality (see Karney & Bradbury, 1995, p. 23 for the original model). These key

concepts outline interpersonal, intrapersonal, and contextual factors that relate to broader

marital quality and stability.

Enduring vulnerabilities. Enduring vulnerabilities are defined as stable

characteristics relevant to the individual spouses or couple, such as attachment,

premarital experiences, education, and personality (Karney & Bradbury, 1995). Other

theorists, such as Huston (2000), have also conceptualized these individual factors that may impact marital quality to include any characteristics that may influence how spouses behave and react to each other, such as psychological well-being, personality, core values, intelligence, beliefs, and attitudes. In other words, spouses may have risks or vulnerabilities that negatively impact couples' ability to effectively interact and cope with stressors. Karney and Bradbury (1995) posit that "the individual histories and enduring traits that each spouse brings to the relationship" (p. 22) are central to marital research. Similarly, Huston (2000) posits that "a person who is high strung or who is high in trait anxiety might be expected to show more anger and hostility in marriage in general, but his or her propensity toward negativity may increase under stress" (p. 309). It is important to note that individuals may possess multiple individual characteristics. For example, many individuals with anxiety disorders have co-occurring diagnoses, such as substance use disorders and depressive disorders (APA, 2013). To address this, most research in this area has controlled for additional psychological disorders to examine the impact that anxiety has on marital quality (e.g., Rehman et al., 2015).

Enduring vulnerabilities include individual characteristics that may impact the stressful events experienced by couples as well as their ability to manage and cope with stress and effectively interact as a dyad. For example, these individual characteristics, such as symptoms or diagnoses of anxiety in one spouse, may impact how couples interact as a dyad. For example, previous research has shown how psychological difficulties experienced by one or both spouses impact marital behaviors (e.g., Gana et al., 2016; Zaider et al., 2010). For example, symptoms of anxiety have been linked to

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higher reports of conflict and other negative interactions between spouses (Zaider et al., 2010). The current study considers anxiety symptoms and/or disorders as an enduring vulnerability (i.e., individual level risk factor) that may impact overall marital quality and predict marital instability.

Stressful events. Drawing from aspects of crisis theories (e.g., ABCX model; Hill, 1958), stressful events include "developmental transitions, situations, incidents, and chronic or acute circumstances that spouses and couples encounter" (Karney & Bradbury, 1995, p. 22). These include short- and long-term stressful experiences that are experienced by the couple. For example, stressful events may be related to external factors that are part of spouses' and couples' ecological contexts, which may include life transitions (e.g., entering parenthood), financial stressors, work-related stress, physical health stressors, family-related stress, or other difficult situations that spouses and couples encounter. These stressful events may be acutely experienced over a short amount of time or may be chronic and cause ongoing stress to the couple. Although this aspect of the VSA model will not be tested empirically in the current study, it is important to note that marital quality and stability may be impacted by stressful events as well as enduring vulnerabilities. Additionally, enduring vulnerabilities, such as anxiety, may lead to additional stressful events that the couple experiences. For example, individuals with anxiety may miss days at work or require substantial support from their spouses (APA, 2013), which may create additional stress for the couples (e.g., financial concerns, time constraints, role strain).

Adaptive processes. The way that couples interact with each other and adapt to manage and cope with stress is an integral part of this model. The concept of adaptive processes is derived from behavioral theories, which demonstrate the importance of ongoing marital interactions (e.g., Gottman, 1993). Adaptive processes refer to marital interactions, including spousal behaviors, coping mechanisms, and exchanges. These are the processes through which individuals and couples respond to and cope with the events in their lives. These processes are influenced by individual spouses' enduring vulnerabilities and stressful events.

Enduring vulnerabilities, such as anxiety, are theorized to impact broader marital quality and stability through the interactions between spouses. In the current study, these spousal interactions are conceptualized as one aspect of overall marital quality (i.e., marital behaviors). The VSA model outlines adaptive processes, which include marital behaviors, as predictive of marital quality, whereas the current study conceptualizes those marital behaviors as one underlying component of overall marital behavior. Previous theories have posited that behavioral exchanges and dyadic marital interactions predict the stability of marriages (e.g., Gottman, 1993). The way that couples adapt to difficult situations, interact with each other, and manage differences is a central aspect of marital quality. These adaptive processes are aligned with marital experiences that mediate the pathways between individual factors and overall marital quality and stability. For example, aspects of marital interactions such as conflict and communication are adaptive processes in the VSA model. These dyadic processes are aspects of marital behaviors, which are conceptualized in the current study as components of overall marital quality.

Therefore, when specific adaptive processes (e.g., conflict management, communication) are examined in the empirical studies, they are theorized as factors that inform part of overall marital quality in the current study.

Marital quality. The VSA Model fails to provide a detailed conceptualization or specific examples of marital quality. Instead, the model discusses marital quality broadly to suggest that it encompasses various aspects of overall marital functioning. Nonetheless, the VSA Model does not differentiate the broad concept of marital quality from distinct underlying concepts in the same manner that the terms have been conceptualized in the current study or previous research. In fact, the model explicitly states that "the terms marital quality, marital satisfaction, marital adjustment, and marital distress are used interchangeably to refer to spouses' evaluations of their marriage" (Karney & Bradbury, 1995, p. 3). In contrast, most scholars consider marital quality to be an umbrella term that encompasses these other conceptually distinct marital constructs (Fincham & Bradbury, 1987; Helms, 2013; Huston, 2000). Relatedly, there is a lack of conceptual clarity in the differentiation from adaptive processes and marital quality in the VSA Model. In the current study, adaptive processes are considered marital behaviors, which are one underlying component of overall marital quality. This differs from the VSA Model, which considers adaptive processes a distinct aspect of the model that predicts marital quality. Specifically, marital quality is theorized to have a bidirectional relationship with the interactions and behavioral exchanges between spouses. The current study aims to investigate how anxiety impacts marital quality broadly defined, and in so doing subsumes both the marital quality and adaptive processes dimensions of the VSA

model as indicators of marital quality. Similarly, scholars may also use the VSA model to theorize about the ongoing process of considering and taking steps toward divorce (i.e., divorce proneness), which is another underlying marital quality indicator. Although not yet tested empirically, it may be theorized that anxiety may also relate to divorce proneness. Finally, in the VSA model, marital quality is related to the overall stability of the marital relationship.

Marital stability. In this model, marital stability refers to the likelihood that the marriage will endure or experience a disruption of some sort. Of importance, this term is intentionally broad so that it may be conceptualized as multiple types of disruptions to the marriage, such as separation and divorce. Some couples may experience one or multiple periods of separation that are followed by reuniting the marital dyad or choosing to legally dissolve the marriage through divorce. These acts of separation can be conceptualized, along with divorce, under marital stability in this model, which is primarily referred to as marital instability in the current study.

The VSA model depicts marital quality as a predictor of marital stability. This direction of effects has been theoretically supported with the hypothesized association operating in a manner that as marital quality declines, the risk for marital instability increases (e.g., Gottman, 1993). It should be noted that the current study is not testing the link between marital quality and stability. Rather the current study empirically examines direct effects from anxiety to marital quality and from anxiety to marital instability in a manner that acknowledges the theoretical contributions of the VSA model that would suggest that anxiety may predict marital stability by decreasing marital quality.

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Strengths and weaknesses of the VSA model. At its most basic premise, the VSA model claims that couples without many enduring vulnerabilities or stressful events in their lives will function well as a dyad, which will result in high marital quality and ongoing marital stability (Karney & Bradbury, 1995). Couples who experience a lot of stress and have enduring vulnerabilities, however, may struggle to interact effectively, which may ultimately reduce the quality of their relationship and increase risk for marital instability (Karney & Bradbury, 1995).

The VSA model is a useful theory to examine the directional associations from anxiety (i.e., enduring vulnerabilities) to marital quality and marital instability. This model may be used to conceptualize how individual-level factors, such as anxiety symptoms or disorders, may impact subsequent marital quality and predict marital instability. Specifically, the model posits that marital quality and instability are impacted by anxiety through mediating processes of marital interactions over time. For example, previous research has shown that individuals with anxiety are more likely to have negative interactions with their spouse, such as acting cold or aggressive (Salzer et al., 2008), or experiencing higher rates of conflict (Zaider et al., 2010). Although the current study draws from this theorization, marital behaviors (i.e., adaptive processes) are conceptualized as one component of the overarching construct of marital quality. Thus, the current study will examine the relationship between anxiety and marital quality, including marital behaviors, but will not predict marital quality from indicators of marital behaviors.

Although the VSA model is useful, it has some limitations that weakens its ability to theoretically inform all aspects of the dynamic associations between marital quality or marital instability and anxiety. The model, in its current form, does not address directional effects in the opposite direction that would address how marital quality and instability may also impact subsequent anxiety over time. So, although the VSA model utilizes a longitudinal approach to theorize on the nature of the linkages from anxiety to marital quality and instability, it fails to address the possibility that these linkages may exist in both directions. Previous research has shown that marital factors, such as marital instability, may also impact experiences of anxiety. For example, marital instability (i.e., divorce or separation) has been linked to higher symptoms of anxiety (Chatav & Whisman, 2007). Integrating the VSA model with aspects of the Marital Discord Model of Depression (Beach et al., 1990; Beach & Gupta, 2005), which addresses directional effects in the opposite direction, is needed to effectively theorize about the associations between marital quality or marital instability and anxiety.

Marital Discord Model of Depression

The Marital Discord Model of Depression posits that marital discord may reduce spousal support (e.g., acceptance of emotional expression, self-esteem support, coping assistance) and increase marriage-related stress on the couple (e.g., aggression, thoughts of divorce, criticism), which may lead to increased depressive symptoms (see Figure 2.2; Beach et al., 1990; Beach & Gupta, 2005). Thus, "the decrease in marital support and increase in marital stress are shown to mediate the relationship of marital discord to depression" (Beach et al., 1990, p. 54). Although this model has been created for and

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applied to depression, similar pathways may be theorized for anxiety. For example, Whisman et al. (2018) used the model to demonstrate how marital discord leads to increased symptoms of anxiety. Specifically, this model demonstrates that in addition to the directional pathways suggested by the VSA model (i.e., anxiety leading to decreased marital quality and risk for marital instability), a directional pathway from decreased marital quality may be theorized to lead to worsened anxiety. Anxiety symptoms, for example, have been shown to worsen following divorce (Chatav & Whisman, 2007).

The original Marital Discord Model of Depression has been supported by extant empirical evidence that there is an association between marital discord and depressive symptoms (e.g., Beach et al., 1990; Proulx et al., 2007; Whisman et al., 2001). For example, guided in part by the Marital Discord Model of Depression (Beach et al., 1990), a recent meta-analysis examined the linkages between overall marital quality and well-being, which included measures of depression (Proulx et al., 2007). It was found that the strength of the association from marriage to well-being was stronger than the strength of the association from well-being and depression to marriage, which supports the Marital Discord Model. The model suggests that as couples experience marital discord, the individual spouses within the marriage may see declines in spousal support that are typically available to help manage psychological distress (Beach et al., 1990; Beach & Gupta, 2005; Proulx et al., 2007). Additionally, spouses experiencing marital difficulties may experience more stress and negative interaction patterns, which may also contribute to ongoing depressive symptoms (Beach et al., 1990; Beach & Gupta, 2005; Proulx et al., 2007).

Specifically, the model outlines six specific aspects of spousal social support that may be negatively impacted in the context of marital discord and depression, including "couple cohesion, acceptance of emotional expression, actual and perceived coping assistance, self-esteem support, spousal dependability, and intimacy and confiding" (Beach et al., 1990, p. 68). Couple cohesion refers to the amount of positive time that couples spend together, which may include everyday activities such as participating in enjoyable shared activities or displaying affection (Beach et al., 1990). Additionally, spouses with depression may have trouble sharing their feelings and emotions with their partner and feeling accepted. Next, the amount of support provided by partners to help their spouses cope with their depression may be diminished in the context of marital discord (Beach et al., 1990). There may also be reductions in spousal support to bolster self-esteem, which may contribute to ongoing depression, reduced self-worth, and feeling unappreciated by one's partner (Beach et al., 1990). Similarly, less spousal dependability may lead to a less supportive environment and less commitment to the marriage (Beach et al., 1990). Finally, the model posits that marital discord may lead to reductions in intimacy between spouses (Beach et al., 1990). Overall, these reductions in spousal support may lead partners to be "less available as an attractive source of cohesive interaction, less available as someone who will listen to problems, less available to give helpful advice, less likely to provide support to one's self-esteem, less likely to appear dependable and committed, and less likely to be a target of intimate exchanges" (Beach et al., 1990, p. 74). These social support factors are theorized to contribute to the ongoing experiences and symptomatology of depression.

In addition to reductions in social support, the model also posits that there will be increased experiences of marital stress, including "verbal and physical aggression, threats of separation and divorce, severe spousal denigration, criticism, or blame, and severe disruption of scripted routines" (Beach et al., 1990, p. 75). According to the model, couples experiencing marital discord may be at increased risk for marital violence and may question the ongoing stability of their marriages (Beach et al., 1990). Similarly, couples may experience more negative marital interactions, such as increased criticism, and may change their normal routines (e.g., not saying "I love you" before bed or staying late at work to avoid conflict), which may contribute to more marital distress and depression (Beach et al., 1990). Overall the model theorizes that both marital discord and depression may exacerbate the other over time, which may lead to an ongoing cycle of distress (Beach et al., 1990). This model was developed in the context of marital therapy for spouses with depression, but similar linkages for spouses with anxiety may be speculated. For example, Whisman et al. (2018) used the Marital Discord Model to examine longitudinal causal associations from marital discord to depression and anxiety symptomatology in a sample of Irish adults. It was found that marital discord predicted symptoms of Generalized Anxiety Disorder in husbands, even after controlling for discord in other close relationships (i.e., with family or friends) and symptoms of depression (Whisman et al., 2018). Thus, previous research has demonstrated support for applying the Marital Discord Model to hypothesize the directional association from marital quality or instability to anxiety.

Strengths and weaknesses of the marital discord model. The Marital Discord

Model outlines specific interactional patterns and aspects of social support that are

negatively impacted for couples experiencing marital discord and depression. Couples

experiencing anxiety may also have similar patterns and changes in spousal support. For

example, the model demonstrates that couple cohesion, such as engaging in shared

activities, may be reduced. Additionally, the model shows that spouses with depression

may not feel as though their partner understands and accepts their feelings and emotions

(i.e., acceptance of emotional expression). These factors may also be relevant to those

with anxiety, who often see declines in meaningful shared social activities (APA, 2013)

and whose disorder may be misunderstood by their partner. For example, over time

partners of spouses with anxiety may struggle to understand the disorder, especially when

their spouse is still struggling with anxiety after the couple has made significant

behavioral changes (e.g., Baucom et al., 2003). Similarly, partners of spouses with

anxiety may change their behaviors to reduce the anxiety, but these behaviors may

worsen anxiety and not help their spouse cope with the anxiety (Whisman & Baucom,

2012). Those with anxiety may place demands on their spouse for reassurance (Baucom

et al., 2003) or experience relationship-based anxiety including fears that their marriage is

in trouble (Paprocki & Baucom, 2012). The emphasis on stress and coping in the Marital

Discord Model may have important implications for examining anxiety as well.

Although the model has been utilized primarily to examine the associations

between marriage and depression, it may be adapted to explain the associations between

marital quality or instability and anxiety. For example, marital discord has been linked to

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higher risk for the development of anxiety disorders (Whisman & Baucom, 2012).

Adding to the directional evidence that anxiety may lead to declines in marital quality

and increased risk for marital instability in the VSA model (Karney & Bradbury, 1995),

the Marital Discord Model suggests that directional pathways may also be present in the

opposite direction. For example, previous research has shown that marital factors can

predict psychological functioning (Goldfarb et al., 2007). Marital distress has been linked

to higher risk for anxiety disorders and substance disorders, including Specific Phobia,

Social Phobia, GAD, PD, and substance or alcohol use disorders (Whisman, 2007). Thus,

declines in marital quality can lead to the onset of anxiety or exacerbation of difficulties

related to anxiety that the individual already experiences. Similarly, marital instability is

associated with higher risk for the onset or exacerbation of anxiety (Chatav & Whisman,

2007). Thus, aspects of the Marital Discord Model will be used to further inform

hypotheses regarding directionality derived from the VSA model including the potential

for marital quality and marital instability to impact subsequent anxiety.

Conceptualizations for the Current Study

Although the VSA model (Karney & Bradbury, 1995) and the Marital Discord

model (Beach et al., 1990; Beach & Gupta, 2005) are both useful for understanding

aspects of the association between marital quality or marital instability and anxiety, using

both models provides more explanatory power to understand the complex and dynamic

associations between these factors. The directionality of these constructs has long been

debated. Empirical evidence suggests that although marital quality and marital instability

impact anxiety (e.g., Overbeek et al., 2006; Priest, 2013), anxiety-related factors also

impact marital quality and instability (e.g., Dehle & Weiss, 2002; Gana et al., 2016).

Thus, by drawing on both theoretical models, the directional pathways that position

marital quality and marital instability both as predictors of anxiety and as factors that are

predicted by anxiety are supported conceptually.

To effectively conceptualize the associations between marital quality or marital

instability and anxiety, the VSA model (Karney & Bradbury, 1995) and the Marital

Discord Model of Depression (Beach et al., 1990; Beach & Gupta, 2005) will both be

used to inform and test competing longitudinal hypotheses in the current study. The VSA

model supports treating anxiety as a predictor of marital quality and marital instability. In

contrast, the Marital Discord model posits that marital quality or instability may predict

symptoms of anxiety. The meta-analytic techniques in the current study will allow for a

statistical comparison of empirical articles that have examined each of these competing

hypotheses. Thus, the current study will examine which hypothesis, or theoretical model,

has the most empirical support.

The current study will examine the strength of directional associations through

meta-analytic techniques by statistically summarizing studies that investigated these

associations between marital quality or marital instability and anxiety in each direction.

Specifically, these theoretical models will be used to inform hypotheses regarding

specific pathways between marital quality or marital instability and anxiety. For example,

directional hypotheses regarding the associations from anxiety to marital quality and

marital instability will be developed with theoretical support from the VSA Model

(Karney & Bradbury, 1995), whereas hypotheses regarding the associations from marital

quality and marital instability to anxiety will be guided by the Marital Discord Model (Beach et al., 1990). Specifically, empirical articles that examined associations between anxiety and marital quality or marital instability will be statistically summarized using meta-analytic techniques with these models providing a conceptual guide. The meta-analytic results from the current study will provide a statistical synthesis of the empirical findings that have provided support for the hypothesized connections between marital quality or marital instability and anxiety in each direction. Additionally, the meta-analysis will provide a more comprehensive examination of empirical support for the VSA Model (Karney & Bradbury, 1995) and the Marital Discord Model (Beach et al., 1990) than has been completed to date. Specifically, the current study will examine the VSA theorized link from anxiety (i.e., enduring vulnerabilities) to marital quality and from anxiety to marital instability. Similarly, the current study will assess how marital quality may lead to anxiety, as theorized in the Marital Discord Model. Thus, the current study will lead to more comprehensive picture about the strength and directionality of the linkages between marital quality or instability and anxiety. Specifically, although scholars have theorized that these associations are likely bidirectional, the current study will examine the strength of those directional associations to determine which theoretically supported direction of effects has the most support. This information may be used to inform theory, research, and practice.

Literature Review

Recent literature has demonstrated that marital quality and marital instability are both associated with anxiety, but there has been variability in the direction and strength

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of these associations. For example, previous research has demonstrated that the quality of

marital relationships is associated with the onset or exacerbation of anxiety symptoms

(Goldfarb et al., 2007). Similarly, in a study utilizing the Marital Discord Model (Beach

et al., 1990), decreased marital quality has been shown to predict heightened symptoms

of anxiety (Whisman et al., 2018). In contrast, anxiety also impacts marital quality and

may predict instability. Indeed, relationship difficulties often accompany anxiety (Foran,

Whisman, & Beach, 2015) and may viewed as a common source of worry (APA, 2013;

Paprocki & Baucom, 2012). For example, informed by the Marital Discord Model (Beach

et al., 1990) as well as the VSA Model (Karney & Bradbury, 1995), a recent cross-

sectional study of couples living together or married found that couples with an anxious

wife were more likely to perceive that their relationship was worse than other couples

(Gana et al., 2016). Although the use of both theoretical models provided an opportunity

to theorize about the directionality of these associations, Gana et al. (2016) was limited

by the use of cross-sectional data and unable to effectively examine the directional

associations between marital quality or instability and anxiety. Nonetheless, previous

research has shown that anxiety lowers couples' overall satisfaction with their marriage

over time (Goldfarb et al., 2013; Stevens et al., 2013) and increases the likelihood that the

couple will experience marital instability (Breslau et al., 2011; Mojtabai et al., 2017). In

general, marital scholars have linked anxiety disorders to worse marital outcomes, which

is likely related to the increased stress and tension that anxiety places on a marriage

(Bradbury & Karney, 2004). Many scholars have utilized theoretical frameworks, such as

the VSA Model or the Marital Discord Model to speculate about the nature and direction of these associations.

Although rarely tested empirically in the same study, most scholars theorize that there are causal associations between marital quality or instability and anxiety that operate in both directions over time. In other words, marital scholars suggest that marital quality and instability impact subsequent anxiety and anxiety impacts subsequent marital quality and instability (Goldfarb et al., 2007; Mastekaasa, 1992; Simon, 2014). In fact, most scholars argue that both social selection and social causation associations are evident. For example, social selection hypotheses posit that better adjusted (e.g., better mental and physical well-being) individuals are more likely to marry and stay married (Horn et al., 2013). In contrast, social causation hypotheses often postulate that marital factors impact subsequent anxiety symptoms (Horn et al., 2013). For example, scholars theorize that there is a "marriage benefit," such that marriage provides protections against certain mental health outcomes, such as anxiety disorders. Marital status is often used as a proxy for marital quality in this literature. Scholars have noted, however, that it is not marital status per se (i.e., single vs married), but the observed and perceived quality of marriages that predict well-being (Goldfarb et al., 2007). Therefore, high quality marriages (rather than simply the status of being married) are thought to be the driving force behind the "marriage benefit" (Goldfarb et al., 2007). Similarly, low marital quality (e.g., discord, distress, instability) may increase anxiety symptoms.

Overall, scholars theorize that both social selection and causation factors are involved in the associations between marriage and anxiety. Nonetheless, few empirical

studies have examined the directionality of these associations in well-designed

longitudinal studies (e.g., see Wade & Pevalin, 2004). Instead, most studies have

examined the associations between marital quality or marital instability and anxiety in

one direction. The directionality of these associations is rarely tested concurrently in

empirical studies due to methodological and theoretical limitations. First, much of the

previous research has been limited by cross-sectional data that do not allow for an

examination of directionality (e.g., Gana et al., 2016; Scott et al., 2011). In fact, the

primary use of cross-sectional data has been critiqued in the field for the last several

decades (Karney & Bradbury, 1993). These cross-sectional data do not allow for an

examination of the associations between marital quality or instability and anxiety across

time to effectively examine the strength of the association in each direction. Relatedly,

because marital quality, marital instability, and anxiety cannot be experimentally

manipulated with randomization, it is often difficult for researchers to design studies that

account for selection and causation effects (Dinescu et al., 2016). For example, without

conducting a longitudinal study that assessed anxiety symptoms and/or disorders before,

during, and after marriage, it is difficult to determine if anxiety predicted selection into

marriage and marital outcomes, or if marital quality predicted anxiety. For example,

anxiety symptoms prior to marriage may predict who individuals choose to marry and

how their marriages function (Carlson, 2012). This process may increase the likelihood

that individuals marry people with similar characteristics, potentially compounding risk

by coupling together low- and high-risk couples (Seeman, 2012). Overall, previous

research has been limited by the primary use of cross-sectional studies that are unable to address directionality.

Additionally, previous research is limited by the availability of theoretical models that address these longitudinal associations. For example, anxiety symptoms are often considered a risk factor for lower marital quality and higher rates of marital instability. Many of the empirical findings provided here are informed by theoretical models (e.g., VSA Model; Karney & Bradbury, 1995) and studies that frame anxiety as a risk factor for decreased marital quality and increased marital instability. In contrast, marital quality and marital instability have also been treated as predictors for symptoms or disorders of anxiety. Relatedly, much of this empirical literature has utilized the Marital Discord Model that suggests difficulties within the marriage may lead to increased psychological difficulties, such as depression (Beach et al., 1990). Although scholars agree that these associations likely work in both directions, most empirical studies rely on theoretical models that only hypothesize on the associations between marital quality or instability and anxiety in one direction across time.

The following sections review the empirical literature regarding associations between marital quality or marital instability and anxiety. First, marital predictors of subsequent anxiety, including marital quality and instability, will be reviewed. Next, previous research examining how anxiety symptoms and disorders also impact marital quality and instability will be discussed. Next, because there is empirical evidence supporting associations in both directions, scholars' theorization about the directionality of the associations between marital quality or marital instability and anxiety will be

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outlined. Finally, because gender differences regarding the associations between marital quality or instability and anxiety have been noted in the literature, inconsistencies in these findings based on gender will be presented.

Marital Quality and Marital Instability Predict Anxiety

   The marriage benefit: Marital status protects against anxiety. Marital scholars have suggested that there is a "marriage benefit," such that married individuals espouse better health and well-being. Married individuals may have economic security, social support (Carlson, 2012), and better physical health (Dinescu et al., 2016). For example, a review of previous research has shown that married individuals often report better overall health than their never married counterparts (Fincham & Beach, 2010b). Marriage brings greater connections to social support and may allow individuals to develop a shared sense of purpose (Carlson, 2012; Simon, 2014). Marriage may also be associated with better mental health, such as lower symptoms of anxiety (Scott et al., 2010). The basic theoretical premise associated with the marriage benefit postulates that there is a causative link between marital status and anxiety. In support of the marriage benefit, empirical studies have demonstrated cross-sectional and longitudinal linkages between marital status and anxiety symptoms or disorders.

   For example, in an atheoretical study using data from fifteen countries, Scott et al. (2010) found evidence for a protective factor associated with first marriage. Marital status was related to reduced risk for the onset of various psychiatric disorders. Specifically, married individuals in first marriages had lower rates of depression, panic disorder, and substance use (Scott et al., 2010). This study was, however, not informed by

a theoretical framework and was limited by the use of cross-sectional data. Nonetheless, current and lifetime history of psychiatric disorders were collected to control for the presence of mental health issues prior to marriage, leading Scott et al (2010) to conclude that marital status predicted reduced risk for psychological disorders. Similarly, using general measures of well-being and overall life satisfaction, Mastekaasa (1992) found that continuously married individuals in first marriages had better overall well-being than never married, divorced, or widowed individuals.

Previous research has suggested that the marriage benefit should be examined in the context of societal expectations and norms. For example, Carlson (2012) drew from the normative life course perspective (Neugarten, Moore, & Lowe, 1968) and stress process theory (Pearlin, 1989) to examine how individuals' expectations about marital timing moderate the impact that first-marriage has on psychological functioning. It was found that deviating from desired age of marriage (i.e., marrying earlier or later than desired) reduced the benefits of first marriage on some mental health outcomes, such as depressive symptoms (Carlson, 2012). If this deviation was large (i.e., marrying much earlier or later than desired), the marriage benefit disappeared completely. People who deviated from their plans were also more likely to get divorced or separated (Carlson, 2012). This study largely examined depressive symptoms in relation to deviating from marital norms, but similar linkages with anxiety may be hypothesized. Understanding the connections between marital status and anxiety in the context of macroenvironmental influences will be crucial for future research. Additionally, most of this research has relied on samples of married couples in their first marriages compared to never married

individuals. Examining the impact that remarriage has on psychological outcomes, such as anxiety, will be an important direction for future research. For example, a recent study in Sweden found that contrary to expectations aligned with the marriage benefit, men who remarried after divorce were at increased risk for depression compared to divorced men that did not remarry (Hiyoshi et al., 2015).

Although previous research has suggested that marital status predicts overall well-being, scholars have critiqued this research and suggested that these studies have used marital status as a proxy for social attachment and the quality of relationships (Ross, 1995; Walker, 2000). For example, Ross (1995) challenged the idea that marital status, as opposed to factors of social connection and support, was associated with well-being. Marital status, according to Ross (1995) should be reconceptualized into a "continuum of social attachment" (p. 129) ranging from those with no intimate partner to varying levels of intimate relationships (i.e., partners living apart, unmarried cohabiting partners, and married partners). Investigating this continuum of social attachment with a large probability sample of adults, it was found that the effect of marital status on well-being was better explained by other factors, such as economic well-being and social and emotional support (Ross, 1995; Walker, 2000). In fact, no significant differences in well-being were found between partners who were cohabiting and those who were legally married (Ross, 1995). Thus, aspects of social attachment and the quality of intimate relationships were better predictors of well-being than marital status (Ross, 1995; Walker, 2000).

Although this critique of the literature began over two decades ago, marital status continues to be used as a proxy for other indicators of marital quality and social attachment in this empirical research (Ross & Mirowsky, 2013). Additionally, this body of research has been used to provide support to hypothesized connections between marital instability and anxiety, which is often measured with categorical data based on legal marital status. For example, the associations between marital status and anxiety have often been used as supporting evidence to frame hypotheses that marital instability may lead to increased symptoms of anxiety (e.g., Chatav & Whisman, 2007; Scott et al., 2010; Wade & Pevalin, 2004). Thus, although marital status is not a key variable in the current study, this literature provides a review of research that parallels findings related to marital instability and anxiety. Similarly, limitations in this area of research has stimulated research to investigate nuanced processes and experiences related to marriage that may support anxiety and other aspects of overall well-being. For example, aligned with critiques outlined originally by Ross (1995), contemporary research has examined aspects of marital quality as predictors of anxiety.

Marital quality predicts anxiety. Marital status may serve to protect individuals against anxiety, but it is likely that the quality of those marriages matters most. Although marital status has often been framed as a proxy for marital quality, empirical studies have also examined specific aspects of marital quality, such as marital satisfaction, marital distress, and specific marital behaviors (e.g., conflict), in relation to anxiety. In fact, the quality of the marital relationship may be a better predictor of subsequent mental health outcomes than marital status alone (Goldfarb et al., 2007; Horowitz et al., 1996;

Overbeek et al., 2006). Unhappy marriages may not offer the same benefits as happy marriages (Goldfarb et al., 2007). Individuals in low-quality marriages may experience higher rates of anxiety than individuals in high-quality marriages. For example, lower perceived relationship quality with one's spouse was associated with higher risk for GAD and panic attacks (Priest, 2013) and marital discord has been linked to a higher risk for the development of anxiety disorders (Whisman & Uebelacker, 2006).

Therefore, beyond marital status alone, specific aspects of marital quality may influence spousal symptoms of anxiety. How spouses interact may influence their ability to maintain their psychological well-being. For example, a review article posited that marital discord, which was conceptualized as low self-reported adjustment to the relationship, may increase risk for the onset of anxiety or substance use disorders (Whisman & Baucom, 2012). Similarly, Whisman (2007) examined the association between the 12-month prevalence of various psychiatric disorders and marital distress. A composite score calculated from fourteen items on the Dyadic Adjustment Scale, which is a self-report measure that examines marital adjustment (Spanier, 1979), was used to assess marital distress. There was a strong association between marital distress and anxiety disorders, including GAD, PD, and Specific Phobia (Whisman, 2007).

Other aspects of marital quality, such as perceived social negativity (e.g., lack of affection or understanding, higher rates of conflict) from spouses have also been associated with higher rates of mood and anxiety disorders (Bertera, 2005). In a study guided by social exchange theory (White, Klein, & Martin, 2014), perceived negativity from spouses was a better predictor of both anxiety and mood disorders than perceived

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negativity from friends. Perceived positive social support from relatives, but not spouses, was associated with lower rates of anxiety and mood disorders (Bertera, 2005). Because spouses are a source of love and support, deficits in this social support, or social negativity, may result in increased symptoms of anxiety. In fact, relationship concerns are a common source of worry for people with anxiety, which helps elucidate how marital quality may exacerbate anxiety symptoms (Foran et al., 2015).

As a demonstration of how marital quality impacts broader facets of well-being, Proulx, Helms, and Buehler (2007) used the Marital Discord Model of Depression (Beach et al., 1990) and Stress Generation Model (Davila et al., 1997) to inform their meta-analysis of 93 studies. They examined the linkages between marital quality and well-being (i.e., depression, self-esteem, life satisfaction, global happiness, and physical health). High quality marriages were associated with better overall well-being, both in cross-sectional and longitudinal analyses (Proulx et al., 2007). More recent studies have replicated these findings that marital quality is related to mental health outcomes, including depression and anxiety. Whisman et al. (2018) found support for these associations in cross-sectional and longitudinal analyses. Specifically, marital discord was positively correlated with both anxiety and depression at baseline. Additionally, longitudinal analyses found that marital discord predicted subsequent anxiety disorders for husbands, even after controlling for depressive symptoms and discord with family and friends (Whisman et al., 2018). The longitudinal association between marital discord and depression symptoms was stronger for husbands than for wives.

Additionally, utilizing three waves of a large study in The Netherlands, Overbeek et al. (2006) found that marital instability was associated with the onset of SAD two years later. Using a self-reported measure assessing the quality of the spouses' marriages prior to divorce, Overbeek et al. (2006) demonstrated that marital quality moderated this association. Those who had low quality marriages prior to divorce did not see an increased risk for the development of SAD (Overbeek et al., 2006). Those who perceived their marriage to be of high quality prior to their divorce, however, were at increased risk of developing SAD and depressive and substance use disorders (Overbeek et al., 2006). These empirical findings demonstrate how overall marital quality, which includes spousal perceptions of their marriage and marital interactions, may lead to increased symptoms of anxiety and other mental health concerns. This is also supported by shifts in the DSM, which now include intimate partner relationship distress as an additional diagnostic code (APA, 2013; Foran et al., 2015). This acknowledges the linkages between relationship distress and psychiatric outcomes, such as anxiety disorders.

Marital instability is linked with higher anxiety. Aligned with the marriage benefit, marital instability (i.e., divorce, separation) has also been examined as a predictor of anxiety. Individuals who have experienced marital instability tend to have heightened anxiety symptoms immediately following divorce and across time compared with persons that remained continuously married (Scott et al., 2010; Wade & Pevalin, 2004). Chatav and Whisman (2007) utilized cross-sectional data from the National Comorbidity Study to investigate associations between marital instability and retrospective 12-month prevalence of psychiatric illnesses. People who got divorced were more likely to

retrospectively report that they had a psychiatric diagnosis in the preceding 12 months. In fact, marital instability was associated with a 3.7, 2.5, and 3.3 fold increased risk for mood disorders, anxiety disorders, and substance use disorders, respectively (Chatav & Whisman, 2007). Although this study was cross-sectional in nature rendering it difficult to discern directionality, the authors hypothesized that marital instability predicted worse mental health outcomes.

In addition to cross-sectional examination of these linkages, Wade and Pevalin (2004) examined the connection between marital instability and onset of general mental health issues longitudinally. Using a general measure of mental health and well-being, they found that 54% of people who got divorced or separated in the preceding year reported poor overall mental health, compared to less than 19% of continuously married individuals (Wade & Pevalin, 2004). Mapping out mental health across time, they found that individuals who would get divorced reported decreased mental health up to two years before the divorce occurred, which reached a peak around the time of the divorce (Wade & Pevalin, 2004). This could suggest that individuals who struggle with mental health issues are more likely to get divorced (e.g., "selecting out" of marriage), or that marital issues prior to this time led to increased mental health issues before the divorce occurred. This may also suggest that an ongoing process related to divorce (e.g., divorce proneness; Gottman, 1994) is also related to mental health outcomes. These complexities in the literature need to be examined more thoroughly in future research.

In contrast to these findings suggesting that marital instability may lead to increased anxiety, individual spouses' anxiety, depression, and substance use disorders

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have also been found to increase risk for divorce (Breslau et al., 2011). In other words, although marital instability may predict the onset or exacerbation of anxiety symptoms and disorders, these associations exist in both directions. Anxiety symptoms and disorders may also predict declines in marital quality and amplify risk for marital instability.

Anxiety Impacts Marital Quality and Instability

People with anxiety have extensive and chronic worry that impacts their daily life functioning, which often includes the functioning of their intimate relationships (APA, 2013). The functional impairment that is experienced by people with anxiety in daily life can spillover to impact their relationships and family. Anxiety may predict the likelihood that individuals get married, as well as the quality and stability of those marriages. First, there have been mixed findings regarding the nature of the association between anxiety and the likelihood that individuals will get married. One study found that individuals with GAD were more likely to be in committed relationships than all other groups of individuals (i.e., those with no psychiatric diagnoses, or other psychiatric diagnoses without the presence of GAD; Yoon & Zinbarg, 2007). Another study, however, found that various anxiety disorders, such as GAD and SAD, were associated with lower odds of marrying (Mojtabai et al., 2017). These seemingly inconsistent findings may be due to the conceptualization of relationships, with the first study considering both cohabiting relationships and marital relationships as indicators of committed (i.e., marriage or "marriage-like") relationships. In contrast, Mojtabai et al. (2017) analyzed differences between individuals who were legally married and those that were not. Neither study,

however, was informed by a theoretical framework. Nonetheless, for those who get married, anxiety symptoms and disorders are strongly associated with worse marital quality, higher marital dissatisfaction, and higher risk for marital instability (Goldfarb et al., 2013; Mojtabai et al., 2017; Stevens et al., 2013; Whisman, Sheldon, & Goering, 2000).

Cross-sectional data have demonstrated a connection between anxiety and marital satisfaction. For example, guided by the Marital Discord Model of Depression (Beach et al, 1990), the Stress Generation Model (Davila et al., 1997), and the VSA Model (Karney & Bradbury, 1995), a dyadic sample of husbands and wives was utilized to examine anxious mood in relation to marital satisfaction for both partners (Gana et al., 2016). Wives' anxious mood was associated with lower rates of marital satisfaction for wives and their partners (Gana et al., 2016). Additionally, wives' anxious mood was associated with lower rates of marital idealization (i.e., a positive bias or perception of their relationship), which mediated the association between wives' anxious mood and lower marital satisfaction (Gana et al., 2016). These analyses should be replicated, though, with data that are longitudinal to examine patterns of association over time. Similarly, additional cross-sectional analyses linked higher reports of anxiety symptoms with lower marital satisfaction among middle-aged individuals who had been married for five or more years, even after controlling for depression and angry hostility (Renshaw, Blais, & Smith, 2010).

Whereas cross-sectional findings can only provide a snapshot of these associations, longitudinal findings have confirmed the impact of anxiety on the marital

experience across time. For example, both actor and partner effects of spouse anxiety on quality have been detailed in the literature with longitudinal analyses. For example, associations between marital satisfaction and anxiety were examined in a dyadic sample of couples (Rehman et al., 2015). Partners who reported high levels of anxiety at baseline also reported declines in their own marital satisfaction approximately one year later (Rehman et al., 2015). Similarly, significant declines in marital satisfaction over time were observed for the wives of husbands who reported high levels of anxiety (Rehman et al., 2015). Wives' anxiety, however, did not significantly impact husband marital satisfaction across time (Rehman et al., 2015). It was postulated that heightened sensitivity to rejection may cause wives to attribute their husbands' anxiety to marital difficulties, which results in a decline in wives' reported relationship satisfaction (Rehman et al., 2015). Informed by a Cognitive-Behavioral Theory of Marital Functioning that outlines how negative emotions may increase marital distress (Baucom & Epstein, 1990), Dehle and Weiss (2002) examined the associations between marital adjustment and anxiety. Specifically, using two waves of data from 47 recently married couples, they examined composited marital adjustment scores reported on the DAS (Spanier, 1979), and symptom levels of anxiety as reported on the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1993). They found evidence that anxiety impacted subsequent marital adjustment, such that higher levels of husbands' anxiety was associated with decreases in their own and their wives' marital adjustment 12 weeks later (Dehle & Weiss, 2002).

In demonstration of the impact that anxiety has on marital quality, scholars have investigated how anxiety may negatively influence couples' abilities to effectively interact. Anxiety is often accompanied by interpersonal difficulties, such as interacting in cold, aggressive, or intrusive manners with one's spouse (Salzer et al., 2008). Additionally, people with anxiety often rely on extensive support from their spouses, which is likely related to an "elevated interpersonal dependency" (Yoon & Zinbarg, 2007, p. 963). For example, those with PD and Agoraphobia may rely on their spouses to accompany them to distressing places, may struggle at work or lose their jobs, and may rarely leave the home out of fear that they may experience more panic attacks (Marcaurelle et al., 2003). Similarly, using a dyadic sample of 21 couples, a recent study found that individuals with anxiety may seek constant reassurance from their partner or try to avoid conflict due to worry about rejection from their partner (Paprocki & Baucom, 2017). These anxiety-related experiences, including increased level of reliance, negative marital interactions, increased daily hassles of the non-anxious spouse, and functional impairment in daily life activities can strain marital relationships and decrease levels of marital quality.

Most research in this area, however, has utilized samples in which the wife has anxiety (Goldfarb et al., 2007). For example, to investigate these processes, Zaider et al. (2010) utilized an ecological momentary assessment (i.e., daily diary) approach with 33 couples comprised of a wife with anxiety and a husband without anxiety. They aimed to assess how wives' anxiety impacts marital quality. On days when wives experienced anxiety, they reported more negative interactions with their spouse, such as higher rates

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of conflict or discord (Zaider et al., 2010). Husbands were more likely to report reductions in positive aspects of their marital relationship (e.g., reductions in dependability and support) on those days when their wives reported more anxiety (Zaider et al., 2010). Wives' anxiety was also associated with more anger, depression, and anxiety in their husbands on those days. By way of explanation, anxiety symptoms may lead to more negative interactional patterns, which may ultimately serve to worsen both marital quality and anxiety.

In general, the chronicity of anxiety symptoms can be overwhelming and debilitating. Individuals with some anxiety disorders, such as GAD, may worry about their family, health, money issues, or other big concerns related to everyday life (APA, 2013). They may also worry about relatively minor stressors, such as being on time or staying organized at work. Other anxiety disorders are associated with a specified stressor (e.g., Panic Disorder, Social Anxiety Disorder) that causes intense and extreme anxiety in certain situations. Regardless of the etiology of anxiety, spouses of those with anxiety may try to help relieve their partners' distress by changing their behaviors. For example, spouses may try to accommodate their partner to lower anxiety by assuming more responsibilities and changing their daily activities and behaviors (Baucom et al., 2003). These accommodation behaviors can range from simple actions (e.g., reassurance) to big behavior changes, such as becoming the primary financial or childcare provider when one spouse has severe anxiety and is unable to work. Although these accommodating behaviors are well-intentioned, these changes could inadvertently reinforce anxiety symptoms (Baucom et al., 2003).

If the non-anxious spouse accommodates their partner's desire to avoid distressing situations or constantly provides reassurance, it may result in increased anxiety associated with those situations (i.e., confirming their anxiety), conflict within their relationship, resentment, and relationship distress (Baucom et al., 2003; Paprocki & Baucom, 2017). Although the spouse without anxiety is attempting to help, their accommodating behaviors can often exacerbate difficulties for their relationship and their partner's anxiety. This accommodation may create tension and stress between the spouses by focusing solely on the needs of the spouse with anxiety, which can become tiresome and stressful for the non-anxious spouse (Baucom et al., 2003). This may also lead to more emotional reactions from both spouses. The non-anxious spouse's level of empathy may begin to dissipate as the stress and emotional strain of reassuring their partner, becoming the primary caregiver for the family, and maintaining family life becomes overwhelming (Baucom et al., 2003). Although the behavioral changes made by the non-anxious spouse may appear to lead to primarily to small inconveniences, even minor daily hassles can accumulate in a manner that contributes to ongoing stress and family functioning (Helms, Postler, & Demo, in press). Over time, these accommodating behaviors can impact the quality of the couple's marriage (Paprocki & Baucom, 2017). Although the non-anxious spouse may initially feel empathetic to their spouse and want to help, over time it can begin to burden the non-anxious spouse and strain the marriage. It can be difficult for spouses without anxiety to understand why their partner fears situations that, to them, appear harmless. They may also struggle to understand why the anxiety isn't getting better, especially after making changes to accommodate their spouse.

Burdened by these additional responsibilities, non-anxious spouses may become overwhelmed, especially if the anxiety does not improve (Baucom et al., 2003). So, although spouses often have altruistic motives to provide reprieve to their partner, anxiety often takes a toll on the marriage.

On top of the emotional distress associated with reassuring, accommodating, and supporting a partner with anxiety while often assuming primary responsibility for daily tasks such as childcare and finances, the couple may also be burdened by the other symptoms associated with anxiety. Physical symptoms such as restlessness, lack of concentration, irritability, and sleep disturbances interfere with the couple as well (APA, 2013). Additionally, intense physical symptoms associated with panic can be frightening and overwhelming. These symptoms may lead to additional stressors on the marriage, such as increased medical costs. For example, missed days at work could lead to lost wages or other employment consequences that burden the couple. Irritability may lead to poorer interactional patterns, and other symptoms, such as sleep disturbances, may lead to lower rates of intimacy and higher rates of interpersonal conflict.

In general, anxiety causes stress on both spouses, which is evidenced by consistent research findings demonstrating directional links between anxiety and marital quality in both directions. This research also supports hypothesized links to understand the mediated processes through which anxiety negatively impacts marital quality and predicts marital instability. Most notably, anxiety symptoms may lead to compromised marital functioning, such as more negative interactional patterns between spouses. These negative interactions can then decrease marital quality and increase risk for marital

instability. For example, using two waves of data from the National Comorbidity Survey, Mojtabai et al. (2017) calculated population attributable risk proportions to estimate how psychiatric disorders impact marriages. They found that treating mental health disorders (i.e., mood, anxiety, and substance use disorders) would result in up to 26.8% fewer divorces and 7.8% more marriages across ten years (Mojtabai et al., 2017).

Direction of Associations Between Marital Quality or Marital Instability and Anxiety

As evidenced by the empirical findings, scholars have speculated that there is an association between married couples' likelihood to experience ongoing distress related to decreased marital quality, increased marital instability, and increased symptoms of anxiety. Specifically, because the directional links between marital quality or marital instability and anxiety are thought to exist in both directions, many theorize that a negative cycle of marital distress and heightened anxiety may exist (e.g., Baucom et al., 2003; Dehle & Weiss, 2002; Goldfarb et al., 2007). For example, decreased marital quality or the experience of instability, may increase risk for the development of anxiety disorders (Whisman et al., 2000; Whisman & Baucom, 2012). At the very basic level, not getting along with one's spouse is related to a higher risk for various anxiety disorders, including GAD, PD, Specific Phobia, and SAD (Whisman et al., 2000). Furthermore, perceiving negativity and low support from one's spouse can increase episodes of anxiety (Bertera, 2005; Stevens et al., 2013). Marital distress, in general, can lead to the development of anxiety disorders or exacerbate disorders that are already present (Baucom et al., 2003) and anxiety may lead to worse marital satisfaction (Gana et al.,

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2016; Rehman et al., 2015). Anxiety may negatively impact spouses' abilities to effectively interact (Paprocki & Baucom, 2017; Salzer et al., 2008). This may include increased conflict and marital discord (Zaider et al., 2010).

Stated simply, decreased marital quality and the experience of marital instability have been found to be predictive of and predicted by anxiety. Thus, these associations between marital quality or instability and anxiety may lead to ongoing distress for couples who experience continued anxiety symptoms and negative marital quality that may continue to get worse (Goldfarb et al., 2007; Whisman & Baucom, 2012). As couples focus on managing anxiety, they may not realize the impact the disorder has on their marriage, or vice versa. The interdependent nature of marital relationships provides a conceptual understanding for how individual characteristics, such as heightened levels of anxiety, may impact interactions and other aspects of overall marital quality or lead to marital instability (Karney & Bradbury, 1995; Kelley, 1979). Similarly, decreased marital quality or the experience of marital instability may impact subsequent anxiety (Beach et al., 1990). Unfortunately, few studies have examined the directionality of these associations concurrently in the same study. Future research should utilize longitudinal designs to examine the ongoing associations between these constructs across time to accurately understand how marital quality and marital instability relate to anxiety symptoms and disorders. The current meta-analytic study will examine the overall strength of the associations between marital quality or instability and anxiety, as well as compare the strength of the association in both directions to ascertain which directional effect has more support. Previous meta-analytic research examining the linkages between

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marital quality and depression found that the strength of the association from marital

quality to depression was stronger than the association from depression to marital quality

(Proulx et al., 2007). Although the current study is examining anxiety, similar

associations are hypothesized. Thus, it is expected that the strength of the association

from marital quality or instability to anxiety will be stronger than the association from

anxiety to marital quality or instability.

Gender Differences in the Associations Between Marital Quality or Marital

Instability and Anxiety

On average, females experience higher rates of anxiety disorders than do males

(APA, 2013; Bertera, 2005; Brook et al., 2013). Scholars have noted differences in the

association between marital quality or marital instability and anxiety between males and

females, but there are discrepancies in the gendered patterns of these findings.

Researchers hypothesize that observed gender differences in the associations between

marital quality or instability may be related to differences in social supports between

husbands and wives, such that men rely more on their wives for emotional support that

they may not receive from other members of their social network (Whisman et al., 2018).

Other scholars have posited that gender role expectations, such as the expectation that

women are nurturing, lead men and women to express their emotional distress differently.

For example, women's gendered expectations may lead them to express their emotional

distress in more internalized manners, often leading to the development of depression or

anxiety, whereas men's gender role expectations result in more externalized expressions

of emotion, which may lead to the development of substance use disorders (Simon,

2014). Thus, when men experience anxiety it disrupts these social expectations and strains the marriage (Simon, 2014). Relatedly, there may be differences in the experience of anxiety between men and women, such as differences in common co-occurring disorders. Women are more likely to have co-occurring depression, for example, whereas men are more likely to have co-occurring substance use disorders (APA, 2013; McLean, Asnaani, Litz, & Hofmann, 2011).

Gender differences in the associations between marital quality or instability and anxiety have been noted in the literature. For example, a review article noted that wives with GAD often self-reported worse marital quality, but their husbands' reports of marital quality were not impacted (Goldfarb et al., 2007). When husbands have GAD, however, both husbands and wives self-reported worse marital quality (Goldfarb et al., 2007). Similarly, a longitudinal study utilizing a dyadic sample of married couples found that wives of husbands with anxiety symptoms were more likely to report declines in marital satisfaction across time (Rehman et al., 2015). No significant declines in marital satisfaction were found for husbands with wives who reported high levels of anxiety symptoms (Rehman et al., 2015). Although they discussed the need for future research to unpack this finding, they hypothesized that women were more likely to consider marital problems as the cause for their husband's anxiety, leading them to experience declines in marital satisfaction (Rehman et al., 2015). Additionally, in a sample of recently married couples, husband anxiety was found to predict decreases in marital adjustment for husbands and wives across time (Dehle & Weiss, 2002). Overall, longitudinal studies examining the associations between marital quality and anxiety generally find that

anxiety experienced by husbands appears to be more detrimental to the overall

functioning of the marriage. In contrast, however, anxiety reported by wives was

associated with increased reported distress, anger, depression, and anxiety by husbands in

a dyadic daily diary study that examined these dynamic processes as they played out in

real time (Zaider et al., 2010). Similarly, utilizing cross-sectional data, another dyadic

study found that wives' anxious mood was associated with lower marital satisfaction for

both husbands and wives (Gana et al., 2016). Thus, although scholars agree that anxiety

may predict marital quality, there have been mixed findings related to gender in the

literature, which may differ based analytical methods, or whether longitudinal, ecological

momentary assessment (i.e., daily diary), or cross-sectional data are used.

Addressing the impact of gender in the effect between marital quality or

instability and anxiety in the opposite direction, longitudinal research investigating if

marital quality predicts subsequent anxiety in husbands or wives (i.e., actor or partner

effects) has also noted gendered patterns. For example, Whisman et al. (2018) found that

the longitudinal association between marital discord and GAD was significant for

husbands, but not wives, after controlling for friend and family discord and depressive

symptoms. The researchers posited that these gender differences were related to

differences in emotional support—men get most of their emotional support from their

wives, whereas women also get emotional support from family and friends (Whisman et

al., 2018). Thus, when marital discord reduced the amount of emotional support available

from one's spouse, men did not have the additional support members available that

women did to provide emotional support. Finally, some research has failed to find any

differences between husbands and wives in the association between marital quality or instability and one's own or their partner's anxiety (e.g., Chatav & Whisman, 2007; Whisman, 2007; Whisman et al., 2000; Yoon & Zinbarg, 2007).

Therefore, more research is needed to examine any gender differences in the associations between marital quality or marital instability and anxiety to better clarify the inconsistent findings related to gender. Providing clarity to these findings will be useful to inform treatment or intervention efforts, as well as to inform future research and theory development. Specifically, elucidating gender differences in these associations can provide nuanced information that may shape the nature of therapeutic and treatment intervention efforts (e.g., helping husbands identify additional support systems; identifying gendered patterns in marital interactions that increase anxiety, etc.). Additionally, clearly outlining observed gender differences in these associations is needed to inform future research and theory development. For example, future research may use these findings to design studies that assess the processes through which these gender differences may exist (i.e., mediational analyses). Thus, examining gendered patterns in these associations via meta-analytic techniques contributes to the literature by providing a statistical synthesis of the current body of research. Furthermore, meta-analytic research combines findings across studies, which may help interpret the discrepancies in previous research. Therefore, the current study will use gender as a moderator to examine any potential differences in the associations between marital quality or instability and anxiety. Specifically, both gender related to whose marital quality is considered and gender of the spouse with anxiety will be coded in the meta-

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analytic study to investigate if the strength of these associations significantly differ by gender.

The Present Study

The current study will review the associations between marital quality or instability and anxiety with meta-analytic techniques. Specifically, meta-analytic techniques will be used to synthesize and summarize empirical research findings that examined the association between marital quality or marital instability and anxiety. Following the conceptualization of constructs outlined in the introductory chapters, marital quality will be conceptualized here as an overarching term that describes various aspects of marital functioning, including marital behaviors, adjustment, distress, and satisfaction. Additional post hoc analyses will be used to examine the associations between these specific marital quality indicators and anxiety separately. For example, factors such as marital satisfaction and specific marital interactions and behaviors (e.g., conflict) will be used to provide specificity in analyses. Meta-analytic procedures are limited by the characteristics of the included studies. Sample permitting, the current study will examine both broad connections between marital quality and anxiety (e.g., overall marital quality), as well as more nuanced and specific connections that will rely on these conceptualizations (i.e., behaviors, adjustment, distress, satisfaction). Other aspects of the marital experience, such as marital instability (i.e., divorce or separation) will also be examined in relation to anxiety.

Research Questions

Previous research has demonstrated associations between marital quality or marital instability and anxiety. Similarly, theoretical models, including the VSA Model (Karney & Bradbury, 1995) and the Marital Discord Model (Beach et al., 1990) have theorized the nature and directionality of these associations. Given the previous research and outlined theoretical models, the following research questions will be considered:

1. Is there an association between marital quality and anxiety?

   It is hypothesized that there will be a negative association between marital quality and anxiety. More specifically, higher levels of marital quality are expected to be associated with lower levels of anxiety. In contrast, lower reported marital quality is expected to be associated with higher levels of anxiety.

2. Is there an association between marital instability and anxiety?

   An association between marital instability and anxiety is expected, such that marital instability (i.e., divorce or separation) is hypothesized to be associated with higher anxiety. Similarly, high levels of anxiety are expected to be associated with higher rates of marital instability.

3. Is the association between marital quality and anxiety moderated by various study- and effect-level characteristics?

   Specifically, study design (i.e., cross-sectional or longitudinal), the direction of the longitudinal associations, gender, operationalization of anxiety (i.e., continuous or categorical), treatment of marital quality factor

(i.e., positive or negative marital indicator), type of marriage, sample location (i.e., United States samples or international samples), and use of control variables will be examined as moderating variables. Specific hypotheses related to these moderating variables are delineated below.

4. Is the association between marital instability and anxiety moderated by various study- and effect-level characteristics?

Study design, the direction of the longitudinal association, gender, operationalization of anxiety, type of marriage, sample location, and the use of control variables will also be used to test for moderation in the association between marital instability and anxiety. Hypotheses related to these moderating variables are outlined below.

Moderating variables. In addition to examining the strength of the association between these constructs, the current study will also examine study- and effect-level moderators that may help explain some of the variability in these associations. The following study- and effect-level moderators relevant to sample and measurement characteristics will be included in analyses when data are available.

Study design. Although much of the previous research has been cross-sectional in nature, some research has examined these connections across time in longitudinal designs. Scholars have called for more longitudinal research to examine how marital quality or marital instability and anxiety relate over time (Priest, 2013). Because cross-sectional studies only provide a snapshot of the dynamic associations between marital quality or instability and anxiety, it is likely that those associations will be stronger than

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those that prospectively examine the associations between marital quality or instability and anxiety across time. Longitudinal studies, in contrast, can more effectively assess causal relationships and examine patterns between variables across time. Thus, longitudinal studies may provide a more stringent estimate of the association between marital quality or instability and anxiety than cross-sectional studies. A meta-analytic study conducted by Proulx et al. (2007) found evidence that the association between marital quality and well-being was stronger for cross-sectional than longitudinal findings. Based on these findings and previous research, it is anticipated that the strength of the associations between marital quality or marital instability and anxiety will differ based on study design (i.e., cross-sectional designs vs longitudinal designs).

Direction of longitudinal association. Because previous research has demonstrated directional associations between marital quality or marital instability, and anxiety, the strength of these associations in each direction will be considered with previously reported longitudinal effect sizes in the current study. Specifically, previous research has shown the marital quality and marital instability may predict subsequent anxiety (e.g., Chatav & Whisman, 2007; Dehle & Weiss, 2002). In contrast, anxiety has also been found to increase marital difficulties, which is evidenced by lowered aspects of marital quality and higher risk for marital instability (e.g., Gana et al., 2016; Rehman et al., 2015). Similarly, previous research has found that the association between marital quality and depression was strongest when marital quality was used as the independent variable and depression was used as the dependent variable (Proulx et al., 2007). Although depression and anxiety are distinct psychological disorders, similar linkages

may be hypothesized in the current study. Thus, it is hypothesized that the association from marital quality and instability to anxiety will be stronger than the association from anxiety to marital quality and instability. Due to limitations of cross-sectional work to examine directional effects, these hypotheses will be examined using reported effect sizes from longitudinal data only.

Gender. Although much of the previous literature has used samples of couples in which the wife is diagnosed with anxiety (Goldfarb et al., 2007), some research has demonstrated variability in the effects of anxiety disorders on marital quality or instability, and vice versa, between husbands and wives. These gendered differences have been speculated to relate to gender socialization and gender role expectations within marriages, which may contribute to observed gender differences in the associations between marital quality or marital instability and anxiety (Simon, 2014). For example, in a sample drawn from fifteen countries, the association between marital status and Panic Disorder was only present for husbands, not wives (Scott et al., 2010). Specifically, although anxiety is more common among females, research has shown that husbands' anxiety symptoms may be more detrimental to marriages than wives' anxiety symptoms (Rehman et al., 2015; Whisman et al., 2018). Data are collected for the marital quality and anxiety informants (i.e., husbands or wives), which will be used to examine the strength of previous actor and partner effects in the literature. Aligned with this previous research, it is expected that the strength of the association between anxiety symptoms and marital quality will be stronger when husbands have anxiety than when wives have anxiety.

Operationalization of anxiety. Many previous studies have relied on continuous

counts of anxiety symptoms to examine how anxiety relates to marital factors (e.g.,

Renshaw, Blais, & Smith, 2010). Other studies have relied more on categorical

descriptions of anxiety, such as the presence or absence of specific anxiety disorders in

relation to marital factors (e.g., Priest, 2013). These differences are often used to examine

broad symptoms of anxiety that fall along a continuum (often below clinical thresholds)

and clinical diagnoses of anxiety. Because this variability in how anxiety is

operationalized, the current study will examine if how anxiety is measured and

conceptualized impacts the associations between marital quality or instability and

anxiety. When the data permit, the current study will examine operationalization of

anxiety (i.e., continuous or categorical anxiety) as a moderating variable.

Treatment of marital quality factor. The primary focus on negative marital

behaviors, such as conflict, has been critiqued in this field (Fincham & Beach, 2010a).

Most of the research on marital quality or marital instability and anxiety has utilized a

deficit-based approach to examine negative marital behaviors and outcomes, such as

decreased marital quality and increased marital instability. Few studies have focused on

more positive aspects of the marital experience, such as positive relationship quality (e.g.,

Zaider et al., 2010). Nonetheless, most studies find that anxiety negatively impacts

marital interactions, which may suggest that more negatively oriented marital factors will

be more strongly associated with anxiety. Furthermore, a recent meta-analytic study

investigating marital quality and spousal well-being found that negatively oriented

marital factors were better predictors of subsequent well-being than positively oriented

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marital factors (Proulx et al., 2007). Additionally, the Marital Discord Model posits that negative marital interactions and other negative marital quality factors impact individual spouses' mental functioning (e.g., Beach et al., 1990). Additionally, the VSA Model utilized in the current study posits that individual characteristics (e.g., anxiety disorders) may negatively impact marital interactions, which in turn reduces overall marital quality (Karney & Bradbury, 1995). For these reasons, it is hypothesized that the strength of the associations between marital quality and anxiety will be stronger when the marital quality indicator is negatively oriented (e.g., conflict, discord, distress) than when it is positively oriented (e.g., warmth, intimacy, positive relationship quality). Additionally, it is expected that higher levels of negatively oriented aspects of marital quality (e.g., conflict) will be associated with higher levels of anxiety. In contrast, it is expected that higher levels of positively oriented aspects of marital quality (e.g., intimacy) will be associated with lower levels of anxiety.

Type of marriage. Most studies that have examined the linkages between marital quality or marital instability and anxiety have relied on samples of married individuals in their first-marriages (e.g., Carlson, 2012; Scott et al., 2010). Nonetheless, previous research has suggested that the association between marital quality and depression may differ based on whether the sample included couples in first-marriages or those in higher-order marriages (i.e., those that had remarried; Hiyoshi et al., 2015). Although no known study to date has specifically examined if similar patterns exist in the associations between marital quality or instability and anxiety, the current study will code for type of marriage (i.e., first marriage vs. higher order marriage) when the data are reported. Type

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of marriage will be used to examine any differences in the strength of the associations between marital quality or instability and anxiety.

   Sample location. The current study will code for sample location to examine if there are differences in the associations between marital quality or instability and anxiety based on if the studies recruited participants in the United States or in other countries. Although sample location is a crude indicator of potential sociohistorical differences in the association between marital quality or instability and anxiety, it is an important factor to explore because the bulk of the literature on marriage is informed by research conducted within the United States (Helms, 2013). Thus, the current study aims to explore if the empirical findings from within the United States are consistent with findings generated in other geographical areas. This will lay the groundwork for a more contextual examination of these associations in future research, which may differ based on macroenvironmental factors. The way marriage is viewed and experienced may differ by geographical location, which is likely impacted by religion, culture, politics (e.g., immigration), and other legal barriers to marriage and divorce. For example, different sociocultural climates may have different expectations regarding marriage and anxiety, such as stigma associated with divorce (i.e., marital instability) or anxiety. Furthermore, there may be variations in the legal and social barriers to divorce (e.g., no fault divorce laws, religious or cultural expectations; Cherlin, 2009). The current study will aim to examine any differences in the association between marital quality or instability and anxiety between studies that utilized samples drawn from the United States or samples from other locations (i.e., international samples).

Use of control variables. Previous research has demonstrated that marital quality and instability are related to multiple mental health factors in addition to anxiety (e.g., depression, substance use). Additionally, there are high rates of comorbidity between depression, anxiety, and substance use disorders (APA, 2013; Valentiner et al., 2014). Therefore, the current study will examine if previous studies' use of control variables moderates the associations between marital quality or instability and anxiety. Specifically, the current study will examine if the presence of any controls moderates the associations between marital quality or instability and anxiety, as well as the presence of specific control variables (i.e., controlling for depression, substance use, or demographic factors).

CHAPTER III

METHODS

Procedures

This study employed meta-analytic techniques to gather and analyze effects from empirical articles spanning the last twenty years (i.e., 2000 – 2019) that assessed associations between marital quality or instability and anxiety. Meta-analyses collect and assimilate data from empirical articles that tested conceptually similar associations. Combining the results from these studies provides researchers with more statistical power, summarizes the findings from multiple empirical studies, and provides more generalizability (Card, 2010). These techniques can be used to statistically combine and compare previous studies that have investigated the associations between marital quality or marital instability and anxiety. These analytic techniques allow researchers to estimate average effect sizes for these associations, a range of reported effect sizes, and examine connections between those reported effect sizes and study characteristics (Card, 2010). Meta-analytic techniques can also be used to examine the variability of effect sizes across the studies, which helps demonstrate the overall variability of these associations across contexts (Field & Gillett, 2010). This variability can then be examined by investigating potential moderators of the associations between marital quality or instability and anxiety. The following sections detail the methods that were used to conduct this

meta-analytic review. First, an exhaustive literature review was conducted to find empirical articles that examined the linkages between marital quality or marital instability and anxiety. Articles were then examined for inclusion and exclusion criteria. Once an article was deemed eligible for this study, it was coded for various study- and effect-level data. These data were entered into a database and cross-checked for accuracy. Finally, the data were analyzed using random coefficients meta-analytic modeling techniques.

Data Collection and Study Selection

An exhaustive and systematic literature search was conducted to collect eligible articles published between 2000 - 2019. Studies were collected primarily from online databases, such as PsychINFO and EBSCOhost. Marital factor search terms *marriage, marital quality, marital satisfaction, marital communication, marital adjustment, marital conflict, marital stability, marital instability, divorce proneness, marital dissolution, marital separation, marital status,* and *divorce* were combined with the anxiety-related factor search terms *anxiety, generalized anxiety, panic disorder, panic attack, agoraphobia, specific phobia,* and *social anxiety disorder* to identify studies to be reviewed for inclusionary and exclusionary criteria. Additionally, top-tier peer-reviewed research journals in human development and family studies, psychology, close relationships, and other related fields were searched for relevant articles. Specifically, *Journal of Marriage and the Family, Journal of Family Issues, Family Relations, Journal of Family Psychology, Personal Relationships,* and *Journal of Social and Personal Relationships* were used to identify potential articles. Finally, reference lists from relevant articles were used to search for additional preliminary articles.

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The titles and abstracts of the collected empirical articles were reviewed for inclusion and exclusion criteria. Articles were examined for inclusion based on the following criteria: (a) association(s) between marital quality or instability and anxiety related factors were examined, (b) the effects had conceptual consistency with the marital quality or marital instability and anxiety factors outlined in the current study, and (c) the study provided one or more statistical measure of the association between marital quality or instability and anxiety. Articles were excluded based on the following criteria: (a) the study was not published in English, (b) the study was published prior to the year 2000, (c) the study was an unpublished thesis or dissertation, and (d) the sample was only comprised of non-married individuals (e.g., single, cohabiting). Studies that utilized mixed samples with married and non-married individuals were included if separate associations between marital quality or instability and anxiety were provided for the subsample of married persons. Theses and dissertations were excluded because they have not been exposed to the rigor of a peer evaluation and review. To provide a review of recent research, and because scholars have noted shifts in expectations regarding marriage across time, which is evidenced by increased rates of cohabitation, delaying marriage, and less stigma surrounding divorce (e.g., Cherlin 2010; Coontz, 2016), only empirical articles published between 2000 – 2019 were included. This situated the current study in contemporary scholarship addressing the links between marital quality or instability and anxiety published in the preceding two decades.

Preliminary analyses based on the review of the title and abstract of the articles identified in the searches described above identified 224 potentially eligible studies for

the meta-analysis. Upon more extensive examination for the inclusionary and exclusionary criteria, 174 articles were excluded due to the study not providing a statistical measure of the association between marital quality or instability and anxiety or utilizing the same sample (e.g., national data sets such as the National Comorbidity Survey) as other studies. In cases where multiple studies reported using the same sample, the study with the most advanced model was retained. 50 articles were deemed eligible and coded for study- and effect-level data.

Coding Procedures and Data Preparation

Aligned with recommendations provided by a National Council in Family Relations (NCFR) training webinar (presented by Spencer, Cafferky, & Stith, 2018) and *Applied Meta-Analysis for Social Science Research* (Card, 2012), a coding scheme was developed to extract data from the studies. Articles were read and coded for study characteristics and any effects within each study that compared marital quality or instability and anxiety. Study-level coding included basic information about the overall study such as year of publication, location (i.e., U.S. or international), sample size, sample composition (e.g., age, race, gender, education, employment, marital length), and sample population (i.e., community or clinical sample). One study-level coding sheet was completed for each study included in the meta-analysis.

Studies were also coded for information about specific statistical associations between marital quality or marital instability and anxiety. Effect-level coding included information about individual findings, such as design of the effect (i.e., cross-sectional or longitudinal), which marital and anxiety factors (e.g., marital satisfaction, broad marital

quality, marital instability, anxiety symptoms) were considered, assessment methods, treatment status of the sample (i.e., if individuals in the sample were receiving treatment for anxiety and/or marital distress), and gender. Additionally, information regarding the statistical measure of the association (i.e., correlation, standardized beta, odds ratio) was coded, including the value, standard error, and significance of the specific test statistic used, if controls were included, what was controlled for (e.g., depression, substance use, demographic factors), and descriptive information (i.e., means, standard deviations) of the marital and anxiety factors.

Studies often reported multiple findings related to various marital quality or instability and anxiety associations. Therefore, multiple effect-level coding sheets were often completed for the same study. For example, studies often examined the association between various underlying aspects of marital quality in relation to anxiety separately. Or, studies examined the associations between marital quality and anxiety separately for husbands and wives. In cases like these when multiple effect estimates were reported in one study, separate effect-level coding sheets were completed for each effect in the study. See Appendix C for a copy of study- and effect-level coding sheets.

Articles were coded by the first author and a team of undergraduate research assistants that were supervised by the first author. The first 20% of all effects coded by undergraduate assistants were cross-checked by the first author. Coding disagreements were discussed as a group and any changes to coding guidelines were applied to all coded studies. After a final coding scheme was developed and all coding was complete, a random 20% of effects were double coded and analyzed for interrater reliability. Overall,

there was a 94.76% agreement between raters, with a Cohen's Kappa coefficient of $\kappa =$ 0.884. All data were entered into a database and checked for accuracy as it pertains to data entry.

Data Analytic Plan

Once all coded data were entered into a database and cross-checked, descriptive statistics were used to describe various aspects of the study- and effect-level characteristics. Detailed descriptive information about the studies and effects was examined, such as sample sizes, gender, and other demographic information. Additionally, a detailed description of the effect estimates was examined, including what underlying aspects of marital quality have been assessed in relation to anxiety.

Because there is variability in the statistical measure of effects reported in the studies, comparable effect sizes for all findings were computed using formulas recommended by Peterson and Brown (2005) and Card (2012). The primary effect estimate used in the current study is Pearson's correlation coefficient (*r*). All other test statistics were adjusted to correlation coefficients for analyses and/or reporting. Regression coefficients (i.e., beta coefficients) are typically omitted from meta-analyses because they "[reflect] the influence of all predictor variables in a multiple regression model" (Peterson & Brown, 2005, p. 175), and therefore, can bias the results. Peterson and Brown (2005) postulate that excluding these measures of effect also create bias in meta-analyses by ignoring measures of association that "may be essential to an accurate understanding of effect sizes and the conditions that generate them" (Peterson & Brown, 2005, p. 175). Thus, beta estimation procedures outlined by Peterson and Brown (2005)

were used to compute correlation coefficients (*r)* from previously reported beta coefficients.

Recent research, however, has challenged the practice of including beta coefficients in meta-analyses. Roth, Le, Oh, Van Iddekinge, and Bobko (2018) suggested that "meta-analyses in which missing *r*s are imputed with betas could underestimate the mean population correlation" (p. 3). Although beta estimation procedures have been used in many meta-analyses following the Peterson and Brown (2005) article, Roth et al. (2018) noted that no research had examined the accuracy and benefit of including regression coefficients in meta-analyses. Thus, Roth et al. (2018) examined the accuracy of beta estimation procedures in meta-analyses. It was found that including beta coefficients in meta-analyses may introduce bias by underestimating mean correlations and overestimating standard deviations (Roth et al., 2018). In other words, Roth et al. (2018) found that the addition of beta coefficients in the analyses did not provide a better statistical synthesis than using effects reported as correlation coefficients alone, even though the sample of studies included in the meta-analysis was smaller. Therefore, the current study examined if there were differences in the results if beta coefficients were included and computed into correlation coefficients (e.g., Peterson and Brown, 2005), or if they were omitted from the analyses (e.g., Roth et al., 2018).

Comprehensive Meta-Analysis (CMA) 3.0 Software (Borenstein, Hedges, Higgins, & Rothstein, 2014) was used to analyze the data with random coefficients models. Specifically, a random-effects model was used to assess the variability in effect size in the associations between marital quality and anxiety and marital instability and

anxiety. Utilizing a random effects models also allows for greater generalizability of meta-analytic findings because it helps account for within- and between-study variance (Card, 2012). Thus, a random coefficients model assumes that there is variability in the effects across studies (Card, 2012). Additionally, when large enough sample sizes were available, moderators were examined to determine if effect sizes differed based on various study- and effect-level characteristics, such as study design, the direction of the longitudinal association, gender, operationalization of anxiety, treatment of marital quality factor, sample location, and the use of control variables. The magnitude of these correlations were examined using recommendations by Cohen (1969) and Card (2012), such that associations were considered small, moderate, or large when the correlations were $r = \pm\, 0.10$, $r = \pm\, 0.30$, and $r = \pm\, 0.50$, respectively. Due to constraints of meta-analytic techniques, no mediation analyses were assessed. Future research should continue to examine mediational hypotheses regarding specific processes that help explain the associations between marital quality or instability and anxiety.

When data were permitting, both broad and specific conceptualizations of marital quality or marital instability and anxiety were used to assess the associations between constructs. For example, broad conceptualizations were used to combine underlying indicators of marital quality (i.e., marital behaviors, marital adjustment, marital distress, marital satisfaction) together to assess overall marital quality in relation to anxiety. Additionally, post hoc analyses examined associations between those specific underlying indicators of marital quality and anxiety. Similarly, specific anxiety disorders were considered separately in addition to a broadly defined anxiety in these analyses when data

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were available. Unfortunately, only enough data were available to examine specific anxiety disorders (e.g., GAD, PD) in relation to a couple specific marital factors (i.e., negative marital behaviors, instability). In other cases, any anxiety disorder (i.e., categorical distinctions of the presence or absence of anxiety) was examined instead of specific individual disorders.

One limitation of meta-analytic research is often referred to as the "file drawer problem," which describes how not all studies result in publication (Rosenthal, 1979). This limitation refers to publication biases that lead many studies with insignificant findings to be left unpublished, which also impacts meta-analytic research by impacting the effects that are available to be included in the study (Hunter & Schmidt, 2004). In other words, by utilizing empirical articles that have been published, there is a potential risk to over sample previous findings that were significant. Because empirical studies that have significant findings are more likely to be published, it is possible for meta-analytic research to overestimate population effects (Field & Gillet, 2010). Therefore, the current study used CMA Software to employ statistical tests that examined the potential presence of any publication biases that may impact the reported meta-analytic effect sizes. Specifically, Duval and Tweedie's (2000) Trim and Fill and Rosenthal's (1979) Classic Fail-Safe N tests were used to assess the presence of any potential publication biases in the current study.

CHAPTER IV

RESULTS

Study Characteristics

The current study examined 50 studies published between 2000 – 2019 with 297

total effect sizes. The effects examined the association between aspects of marital quality

and anxiety (k = 256) and marital instability and anxiety (k = 41). Sample sizes from the

studies ranged in size from 50 to 36,984, with a mean sample size of 3,958. 60% of the

studies utilized samples drawn from within the United States (n = 30). Most studies

utilized samples drawn from the community (n = 45) as opposed to using clinically-

derived samples to assess these associations (n = 5). Most of the studies used non-random

sampling techniques (n = 32), but there were several large scale probability samples (n =

18).

The mean age of husbands and wives in the meta-analytic study samples ranged

from 26.40 to 71.93 years old and 19.40 to 67.83 years old, respectively—with a mean of

38.30 for husbands and 40.04 for wives. Of the studies that reported racial and ethnic

compositions, 38 - 95% of husbands and 46 - 96% of wives in the samples were White.

Similarly, 0 – 23% of husbands and 0 – 31.4% of wives were Black, 0 – 22% of husbands

and 2 – 24% of wives were Latinx or Hispanic, 0 – 2% of husbands and 1.16 – 20% of

wives were Asian, 0 – 4% of husbands and 0 – 1% of wives were Native American, and 1

– 4% of husbands and 0 – 7% of wives reported their race or ethnicity as multiple/other.

The average mean racial and ethnic sample composition for husbands was 77.3% White,

12% Black, 7.6% Latino or Hispanic, 1% Asian, 3.5% Native American, and 2.4%

multiple or other. For wives, the mean average racial and/or ethnic sample composition

was 79% White, 11.5% Black, 8.9% Latina or Hispanic, 4.8% Asian, 0.5% Native

American, and 3.4% multiple/other. The mean level of education for husbands in the

study samples ranged from 11.7 to 15.9 years and wives' mean education ranged from

11.8 to 16.7 years, with an average education of 14.38 years for husbands and 14.23 years

for wives.

The mean length of marriage for couples in the studies ranged from one year to 41

years, with an average reported mean of 12.21 years. 16% of the studies sampled women

who reported being in their first marriage, but 84% of samples did not identify the marital

type of the married individuals in the sample. Similarly, 14% of the studies relied on

samples of men that were in their first marriages, whereas 86% of samples did not report

whether their sample was comprised of men in their first marriage or a higher-order

marriage. Studies that reported mean family socioeconomic statuses reported a range of

family income from $25,000 to $79,000, with an average reported mean of $50,915.

Of the $k = 297$ effects, 56.8% were statistically significant and 43.2% of reported

effects were not significant at the $p < .05$ level. Most effect sizes examined marital

quality or instability in relation to anxiety symptoms ($k = 204$). Some effect sizes,

however, were based on the relationship between marital quality or instability and

categorical anxiety, such as the presence of GAD, PD, Agoraphobia, or Social Phobia (k

$= 93$). Relatedly, 70.6% of effects were based on samples of individuals that were not

formally diagnosed with anxiety, or the anxiety diagnoses were not confirmed in the

study. Only 29.4% of effects were based on samples of individuals that were diagnosed

with anxiety following DSM criteria (e.g., DSM-III, DSM-IV, DSM-IV-TR, or DSM-5)

as part of the study. Finally, few effects indicated whether spouses were receiving

treatment for anxiety ($k = 8$) or marital distress ($k = 1$). Therefore, due to small sample

size, treatment status was not included in the analyses as a moderator.

Beta Estimation Procedures

Because previous research has debated the accuracy of using beta estimation

procedures to include regression coefficients into meta-analyses (e.g., Peterson & Brown,

2005; Roth et al., 2018), the current study examined differences in the analyses with and

without the inclusion of beta coefficients that have been calculated into correlation

coefficients. Aligned with Roth's (2018) article, it was found that the use of beta

coefficients resulted in lower overall estimates of the mean correlations between marital

quality and anxiety. In some cases, the associations between different factors of marital

quality and anxiety were no longer significant when betas were included in the analyses.

Thus, following recommendations from Roth et al. (2018), the subsequent result section

related to the association between marital quality and anxiety will report on findings from

the meta-analytic techniques that relied only on previously reported correlation

coefficients ($k = 151$). Table 4.1 reports main findings from these analyses when beta

estimation procedures were included (e.g., Peterson and Brown, 2005) and when

correlation coefficients were used alone (e.g., Roth et al., 2018).

Association Between Marital Quality and Anxiety

Few studies examined marital quality as a broad factor associated with anxiety. Instead, most studies examined underlying aspects of marital quality (e.g., specific marital behaviors, marital adjustment, marital satisfaction). Because previous research has examined both positive (e.g., satisfaction) and negative (e.g., distress) indicators of marital quality, the current study recoded effects so that all indicators were working in the same direction and indicative of overall marital quality (i.e., high marital quality vs low marital quality). Effects were then combined to examine the overall association between marital quality and anxiety. Collapsing across all indicators of marital quality (i.e., marital behaviors, marital adjustment, marital distress, and marital satisfaction), the current study found a significant negative association between overall marital quality and anxiety ($k = 151$, $r = -0.228$, 95% CI [-0.278, -0.177], $p < 0.001$). Because variability exists in the measurement tools used to assess marital quality, the current study assessed if the association was consistent between studies that used standardized measurement tools (e.g., Dyadic Adjustment Scale, Marital Adjustment Test, Kansas Marital Satisfaction Scale) and studies that relied on non standardized measurement tools, such as surveys developed for individual studies. There were significant differences in the association between marital quality and anxiety based on the type of marital measurement used ($Q = 14.078$, df $= 1$, $p = 0.001$), such that the association was stronger among studies that relied on standardized measurements ($k = 102$, $r = -0.239$, 95% CI [-0.294, -0.183], $p < 0.001$) than studies that did not use standardized measurements ($k = 49$, $r = -0.143$, 95% CI [-0.221, -0.063], $p < 0.001$).

There were no significant differences in this association based on study design. This association between marital quality and anxiety was significant regardless of the study design employed, evidenced by significant results for both cross-sectional ($k = 91$, r = -0.234, 95 % CI [-0.293, -0.173], $p < 0.001$) and longitudinal studies ($k = 60$, r = -0.209, 95 % CI [-0.260, -0.158], $p < 0.001$). See Table 4.2 for associations between marital quality or instability and anxiety by study design. Among the longitudinal effects, the association from marital quality predicting subsequent anxiety was significant ($k = 51$, r = -0.220, 95 % CI [-0.284, -0.154], $p < 0.001$), whereas the association from anxiety predicting subsequent marital quality was not ($k = 9$, r = -0.047, 95 % CI [-0.283, -0.194], $p =0.194$). Nonetheless, few effects examined the association from anxiety to marital quality ($k = 9$).

Gender moderated the association between marital quality and anxiety, such that the associations were statistically different based on whether husbands' or wives' anxiety was considered ($Q = 11.984$, df = 1, $p = 0.007$). Husbands' anxiety was more strongly correlated with husbands' marital quality ($k = 48$, r = -0.239, 95% CI [-0.311, -0.164], $p < 0.001$) and wives' marital quality ($k = 21$ r = -0.224, 95% CI [-0.337, -0.105], $p < 0.001$) than wives' anxiety was with either spouses' marital quality. Nonetheless, wives' anxiety was also significantly correlated with husbands' marital quality ($k = 31$, r = -0.151, 95% CI [-0.233, -0.066], $p < 0.001$) and wives' marital quality ($k = 43$, r = -0.173, 95% CI [-0.234, -0.110], $p < 0.001$). See Table 4.3 for the associations between marital quality or instability and anxiety by gender.

How anxiety was operationalized also moderated the association between marital quality and anxiety. The association between marital quality and anxiety symptoms ($k = 126$, $r = -0.211$, 95% CI [-0.257, -0.165], $p < 0.001$) and marital quality and categorically defined anxiety, such as anxiety disorders ($k = 25$, $r = -0.249$, 95% CI [-0.394, -0.092], $p = 0.002$), were both significant with similar effect sizes. Nonetheless, these associations were statistically different ($Q = 14.768$, df = 1, $p = 0.001$), with the association between marital quality and anxiety slightly stronger when anxiety was operationalized as the categorical presence or absence of anxiety. In addition to the operationalization of anxiety, the current study also examined differences in diagnostic procedures. There were no significant differences observed in the association between studies that diagnosed anxiety as part of the study ($k = 26$, $r = -0.283$, 95% CI [-0.496, -0.038], $p = 0.024$) and studies that did not confirm anxiety diagnoses ($k = 125$, $r = -0.217$, 95% CI [-0.263, -0.170], $p < 0.001$).

Because marital quality is informed by both positive (i.e., positive marital behaviors, marital adjustment, marital satisfaction) and negative (i.e., negative marital behaviors, marital distress) indicators of quality, the treatment of marital quality factor (i.e., positive or negative indicators) was examined as a potential moderator. There were no significant statistical differences in the association between marital quality and anxiety based on whether the effects were positively oriented ($k = 94$, $r = -0.227$, 95% CI [-0.284, -0.169], $p < 0.001$) or negatively oriented ($k = 57$, $r = -0.209$, 95% CI [-0.294, -0.121], $p < 0.001$). Similarly, the association between marital quality and anxiety was significant regardless of whether samples were comprised of spouses in their first marriage ($k = 46$, r

= -0.175, 95% CI [-0.259, -0.088], $p < 0.001$) or if the marital type of spouses was

unknown ($k = 105$, $r = -0.247$, 95% CI [-0.309, -0.184], $p < 0.001$). Thus, treatment of

marital quality factor and the type of marriage were not found to moderate the association

between marital quality and anxiety.

In contrast, sample location moderated the association, such that there were

significant differences in the association between marital quality and anxiety among

studies that relied on samples recruited within and outside the United States ($Q = 4.671$,

df = 1, $p = 0.031$). The association between marital quality and anxiety was stronger

among international samples ($k = 28$, $r = -0.310$, 95% CI [-0.403, -0.211], $p < 0.001$) than

among samples recruited in the United States ($k = 123$, $r = -0.187$, 95% CI [-0.239, -

0.133], $p < 0.001$). Finally, the use of control variables did not significantly moderate the

association between marital quality and anxiety. Specifically, there were no significant

differences in the association between studies that used control variables ($k = 110$, $r = -

0.227$, 95% CI [-0.330, -0.119], $p < 0.001$) and studies that did not use control variables

($k = 41$, $r = -0.217$, 95% CI [-0.269, -0.163], $p < 0.001$). More specifically, the

association between marital quality and anxiety remained significant when depression ($k

= 28$, $r = -0.260$, 95% CI [-0.438, -0.062], $p = 0.011$) or demographic factors were

controlled for ($k = 17$, $r = -0.198$, 95% CI [-0.277, -0.115], $p < 0.001$). Not enough data

were available to examine if the association would still be significant when substance use

factors were controlled for. Similarly, the association was significant regardless of

whether the samples were drawn from the community ($k = 142$, $r = -0.204$, 95% CI [-

0.251, -0.157], $p < 0.001$) or from clinical settings ($k = 9$, $r = -0.354$, 95% CI [-0.516, -

0.167], $p < 0.001$), or whether studies relied on non-random ($k = 133$, $r = -0.245$, 95% CI [-0.306, -0.182], $p < 0.001$) or probability samples ($k = 18$, $r = -0.164$, 95% CI [-0.241, -0.086], $p < 0.001$).

Although combining all marital quality indicators to assess how broadly defined marital quality relates to anxiety is useful to provide an overall estimate of the relationship, it does not provide more nuanced information about how specific marital quality indicators relate to anxiety. Thus, data permitting, the current study also examined associations between marital quality and anxiety with the specific underlying factors of marital quality, including positive and negative marital behaviors, marital adjustment, marital distress, and marital satisfaction. The meta-analytic findings related to these post hoc exploratory analyses are detailed below.

Post Hoc Exploratory Analyses Related to Specific Marital Quality Indicators

Marital Behaviors

Positive behaviors. Previous research investigating the linkages between anxiety and specific positive marital behaviors, such as closeness/intimacy, communication frequency, constructive communication, partner responsiveness, and emotional or social support was examined. There was a significant negative association between positive marital behaviors and anxiety ($k = 10$, $r = -0.250$, 95% CI [-0.393, -0.096], $p = 0.002$). Most of the effects examining this association were cross-sectional ($k = 8$, $r = -0.275$, 95% CI [-0.449, -0.082], $p = 0.006$). Directional hypotheses could not be examined because only one study examined this association longitudinally.

Wives' positive marital behaviors were associated with wives' anxiety symptoms ($k = 5$, $r = -0.141$, 95% CI [-0.269, -0.008], $p = 0.037$). Husbands' positive marital behaviors and husbands' anxiety were not significantly associated. No effects examined the association between husbands' or wives' positive marital behaviors or anxiety with their partners' positive marital behaviors or anxiety. The current study also examined if there were differences in the association between positive marital behaviors and anxiety based on type of marriage. Positive marital behaviors were significantly associated to anxiety when the type of marriage (i.e., first marriage or remarriage) was unknown or not specified ($k = 4$, $r = -0.308$, 95% CI [-0.521, -0.059], $p = 0.016$), but not for effects drawn solely with spouses in their first marriages.

The association between positive marital behaviors and anxiety remained significant when only studies that operationalized anxiety as a continuous variable (i.e., anxiety symptoms) were included in the analyses ($k = 9$, $r = -0.139$, 95% CI [-0.222, -0.054], $p = 0.001$). Not enough effects (i.e., $k = 1$) were available to test the association between positive marital behaviors and categorically operationalized anxiety (e.g., the presence or absence of specific disorders). Similarly, the effect was significant for studies that did not control for depression, substance use, or demographic factors, for studies that did not confirm diagnoses of anxiety, and for studies utilizing community based samples ($k = 9$, $r = -0.139$, 95% CI [-0.222, -0.054], $p = 0.001$). There were not enough effects ($k = 1$) available to determine if the association would hold when control variables were included, when diagnoses were confirmed in study, or when clinical samples were utilized. Finally, all effects examining the association between positive marital behaviors

and anxiety utilized non-random samples drawn from within the United States.

Therefore, any potential differences that may exist in effects based on samples from

outside the United States or probability samples could not be examined.

Negative behaviors. Previous research has also investigated the association

between specific negative marital behaviors and anxiety. Specifically, negative marital

behaviors may include criticism, destructive or negative communication, physical

aggression, and perceived physical or psychological abuse. The current study found a

significant positive association between negative marital behaviors and anxiety ($k = 29$, r

$= 0.283$, 95% CI [0.205, 0.357], $p < 0.001$). This association appeared to be slightly

stronger among cross-sectional effects ($k = 13$, $r = 0.320$, 95% CI [0.205, 0.427], $p <$

0.001) than longitudinal effects ($k = 16$, $r = 0.233$, 95% CI [0.16, 0.353], $p < 0.001$), but

these differences were not statistically significant. Directional hypotheses could not be

examined because all reported longitudinal effect sizes examined how negative marital

behaviors may predict increased anxiety across time, but no effects examined how

anxiety may predict negative marital behaviors across time.

The association between negative marital behaviors and anxiety was significant

regardless of the gender of the spouse engaging in negative marital behavior or the

gender of the spouse with anxiety. The largest correlation was found for the association

between husbands' negative marital behaviors and husbands' anxiety ($k = 8$, $r = 0.273$,

95% CI [0.223, 0.322], $p < 0.001$). Husbands' negative marital behaviors were also

significantly related to wives' anxiety ($k = 5$, $r = 0.113$, 95% CI [0.039, 0.186], $p =$

0.003). Wives' negative marital behavior was correlated with wives' anxiety ($k = 8$, $r =$

0.257, 95% CI [0.092, 0.409], $p = 0.003$) and husbands' anxiety ($k = 5$, $r = 0.212$, 95% CI [0.140, 0.282], $p < 0.001$).

The association between negative marital behaviors and anxiety was significant for effects utilizing samples of spouses in their first marriage ($k = 18$, $r = 0.260$, 95% CI [0.204, 0.315], $p < 0.001$) as well as effects that did not specify the type of marriage for those in their sample ($k = 11$, $r = 0.360$, 95% CI [0.159, 0.533], $p = 0.001$). How anxiety was operationalized moderated the association between negative marital behaviors and anxiety ($Q = 8.241$, df $= 1$, $p = 0.004$). Specifically, the association between negative marital behaviors and anxiety was slightly stronger when a categorical measurement of anxiety was used (e.g., agoraphobia; $k = 3$, $r = 0.454$, 95% CI [0.325, 0.566], $p < 0.001$) than when anxiety symptom counts were used ($k = 26$, $r = 0.224$, 95% CI [0.172, 0.274], $p < 0.001$).

The strength of the association also varied significantly based on the use of control variables and/or diagnostic procedures ($Q = 8.241$, df $= 1$, $p = 0.004$). The association between negative marital behaviors and anxiety was slightly stronger among effects that did control for depression ($k = 3$, $r = 0.454$, 95% CI [0.325, 0.566], $p < 0.001$) than effects that did not control for depression ($k = 26$, $r = 0.224$, 95% CI [0.172, 0.274], $p < 0.001$). In contrast, the association was slightly weaker among effects that controlled for demographic variables ($k = 11$, $r = 0.167$, 95% CI [0.067, 0.265], $p = 0.001$) compared to the effects that did not control for demographic variables ($k = 18$, $r = 0.315$, 95% CI [0.220, 0.404], $p < 0.001$). No studies examining the association between negative marital behaviors and anxiety controlled for substance use. Similarly, the

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relationship between negative marital behaviors and anxiety was stronger among studies that confirmed anxiety diagnoses in study or effects utilizing clinical samples ($k = 3$, $r = 0.454$, 95% CI [0.325, 0.566], $p < 0.001$) than effects that did not confirm diagnoses or those that utilized community-based samples ($k = 26$, $r = 0.224$, 95% CI [0.172, 0.274], $p < 0.001$). Finally, consistent with the findings related to positive marital behaviors, all effects investigating the relationship between negative marital behaviors and anxiety relied on non-random samples drawn from within the United States. Therefore, any potential differences that may exist in effects based on samples from outside the United States or probability samples could not be examined.

Marital Adjustment

The current study found a significant negative association between marital adjustment and anxiety ($k = 26$, $r = -0.307$, 95% CI [-0.432, -0.171], $p < 0.001$). The association between marital adjustment and anxiety was not moderated by gender, which is supported by significant findings regardless of the gender of the spouses' marital adjustment or anxiety that was considered. Husbands' marital adjustment was significantly correlated with husbands' anxiety ($k = 11$, $r = -0.366$, 95% CI [-0.500, -0.214], $p < 0.001$). Wives' marital adjustment, however, was also significantly correlated with wives' anxiety ($k = 11$, $r = -0.223$, 95% CI [-0.343, -0.096], $p = 0.001$) and husbands' anxiety ($k = 4$, $r = -0.279$, 95% CI [-0.482, -0.047], $p = 0.019$). There were not enough effects to examine the association between husbands' marital adjustment and wives' anxiety.

The association between marital adjustment and anxiety remained significant when analyzing only the effects that utilized samples drawn from outside the United States ($k = 18$, $r = -0.347$, 95% CI [-0.443, -0.243], $p < 0.001$). Unfortunately, too few studies ($n = 1$) used samples of spouses within the United States to test for any differences based on sample location. Similarly, the association between marital adjustment and anxiety was significant when examining anxiety symptoms ($k = 18$, $r = -0.347$, 95% CI [-0.443, -0.243], $p < 0.001$), effects that did not confirm diagnoses of anxiety ($k = 18$, $r = -0.347$, 95% CI [-0.443, -0.243], $p < 0.001$), studies that did not control for depression or substance use ($k = 18$, $r = -0.347$, 95% CI [-0.443, -0.243], $p < 0.001$), and effects utilizing non-random samples of spouses ($k = 23$, $r = -0.291$, 95% CI [-0.424, -0.145], $p < 0.001$). Not enough studies ($n = 1$) examined categorical anxiety, effects from studies that diagnosed anxiety in the study, or effects that controlled for depression or substance use to examine moderation with these variables. No effects examining the association between marital adjustment and anxiety utilized longitudinal data, samples of spouses in their first marriages, or clinical samples. Thus, no moderation based on study design, direction of longitudinal association, the type of marriage, or sample population could be assessed related to marital adjustment.

Marital Distress

Marital distress has been conceptualized as a broad indicator of marital difficulties or low relationship quality. The current study combined effect sizes related to the association between marital distress (e.g., distress, discord) and anxiety. A significant positive association between marital distress and anxiety was found ($k = 28$, $r = 0.134$,

95% CI [0.060, 0.206], $p < 0.001$). The association was significant when non-random ($k = 18$, $r = 0.138$, 95% CI [0.042, 0.232], $p = 0.005$) and probability samples were used ($k = 10$, $r = 0.127$, 95% CI [0.013, 0.238], $p = 0.030$). Similarly, this association remained significant when analyzing effects between marital distress and continuous counts of anxiety symptoms ($k = 18$, $r = 0.123$, 95% CI [0.049, 0.196], $p = 0.001$) and effects between marital distress and categorically defined anxiety ($k = 10$, $r = 0.166$, 95% CI [0.071, 0.257], $p = 0.001$). Thus, how anxiety was operationalized did not moderate the association between marital distress and anxiety.

The current study also investigated whether study design would moderate the association between marital distress and anxiety. The association was significant when effects from cross-sectional ($k = 9$, $r = 0.131$, 95% CI [0.038, 0.222], $p = 0.006$) and longitudinal study designs were analyzed ($k = 19$, $r = 0.109$, 95% CI [0.012, 0.203], $p = 0.003$). Not enough data were available to examine moderation related to the direction of the longitudinal association. Gender was also examined as a potential moderator of the relationship between distress and anxiety. These associations between marital distress and anxiety did not significantly differ by gender. Husbands' marital distress was associated with husbands' anxiety ($k = 8$, $r = 0.146$, 95% CI [0.062, 0.229], $p = 0.001$) and wives' anxiety ($k = 7$, $r = 0.156$, 95% CI [0.077, 0.234], $p < 0.001$). In contrast, wives' marital distress was associated with wives' anxiety ($k = 7$, $r = 0.146$, 95% CI [0.064, 0.227], $p < 0.001$), but not husbands' anxiety. The association between wives' marital distress and husbands' anxiety, however, was trending toward significance at $p < 0.10$ ($k = 6$, $r = 0.090$, 95% CI [-0.010, 0.188], $p = 0.077$).

Marital distress and anxiety were significantly related when the effects did not control for depression, substance use, or demographic factors ($k = 25$, $r = 0.134$, 95% CI [0.060, 0.207], $p < 0.001$). In contrast, the association between marital distress and anxiety was not significant when analyzing effects that controlled for depression or demographic factors ($k = 4$, $r = 0.103$, 95% CI [-0.004, 0.208], $p = 0.060$). It should be noted, however, that the sample of effect sizes for these analyses were small and the effects were all trending toward significance. Not enough data were available to examine differences between effects that controlled for substance use, or between effects comprised of spouses in their first marriages and those who have remarried, studies that utilized samples from within or outside the United States, studies that diagnosed anxiety in study and those that did not use a formal diagnosis, or differences between clinical and community samples.

Marital Satisfaction

Consistent with hypotheses, there was a significant negative association between marital satisfaction and anxiety ($k = 52$, $r = -0.172$, 95% CI [-0.241, -0.100], $p < 0.001$). The association between marital satisfaction and anxiety was significant when analyzing both cross-sectional ($k = 32$, $r = -0.180$, 95% CI [-0.257, -0.100], $p < 0.001$) and longitudinal effects ($k = 20$, $r = -0.155$, 95% CI [-0.283, -0.021], $p = 0.023$). The longitudinal association was significant when examining anxiety leading to marital satisfaction ($k = 5$, $r = -0.291$, 95% CI [-0.512, -0.033], $p = 0.028$) and when examining marital satisfaction leading to anxiety ($k = 15$, $r = -0.144$, 95% CI [-0.274, -0.009], $p = $

0.037). Thus, study location and the direction of the longitudinal association were not found to moderate the association between marital satisfaction and anxiety.

Differences emerged based on how anxiety was measured and reported, such that the operationalization of anxiety moderated the association between marital satisfaction and anxiety ($Q = 4.151$, df $= 1$, $p = 0.042$). Specifically, the association was significant for effects that measured continuous counts of anxiety symptoms in relation to marital satisfaction ($k = 43$, $r = -0.187$, 95% CI [-0.243, -0.129], $p < 0.001$), but not for effects that relied on categorical distinctions of anxiety. Gender differences in the association between marital satisfaction and anxiety also emerged, with moderation analyses related to the gender of the spouse with anxiety trending toward significance ($Q = 3.644$, df $= 1$, $p = 0.056$). Husbands' marital satisfaction was associated with husbands' anxiety ($k = 17$, $r = -0.146$, 95% CI [-0.230, -0.061], $p = 0.001$) and wives' anxiety ($k = 17$, $r = -0.160$, 95% CI [-0.255, -0.062], $p = 0.001$). In contrast, wives' marital satisfaction was associated with wives' anxiety ($k = 7$, $r = -0.287$, 95% CI [-0.495, -0.048], $p = 0.019$), but not husbands' anxiety. The largest effect was found among previously reported effect sizes that did not separate husbands' and wives' marital satisfaction or anxiety ($k = 3$, $r = -0.305$, 95% CI [-0.435, -0.163], $p < 0.001$).

No moderation was found based on the type of marriage, such that the association between marital satisfaction and anxiety was significant for effects based on samples of spouses in their first marriage ($k = 21$, $r = -0.212$, 95% CI [-0.265, -0.157], $p < 0.001$) and effects that did not specify the type of marriage in the sample ($k = 31$, $r = -0.146$, 95% CI [-0.242, -0.047], $p = 0.037$). Similarly, no differences emerged between effects

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that relied on non-random ($k = 48$, $r = $ -0.182, 95% CI [-0.269, -0.091], $p < 0.001$) or

probability samples ($k = 4$, $r = $ -0.145, 95% CI [-0.214, -0.076], $p < 0.001$). There were,

however, differences based on whether effects relied on samples of spouses with anxiety

that were diagnosed with anxiety as part of the study, or samples that did not rely on

formal DSM diagnostic criteria. The association between marital satisfaction and anxiety

was only significant among samples that did not confirm a formal diagnosis of anxiety as

part of the study ($k = 42$, $r = $ -0.191, 95% CI [-0.234, -0.419], $p < 0.001$).

Finally, the current study examined if the use of control variables moderated the

relationship between marital satisfaction and anxiety. The association between marital

satisfaction and anxiety was significantly different ($Q = 17.363$, df = 1, $p < 0.001$)

between studies that did and did not include control variables. The effect was slightly

smaller when controls were included ($k = 12$, $r = $ -0.143, 95% CI [-0.213, -0.071], $p < $

0.001) than when controls were not included in the analyses ($k = 40$, $r = $ -0.225, 95% CI

[-0.272, -0.177], $p < 0.001$). There were not enough data, however, to examine

moderation related to the inclusion of specific control variables, such as depression or

substance use. Similarly, not enough data were available to assess if sample location (i.e.,

samples from the U.S., or international samples) or sample population (i.e., clinical or

community samples) moderated the association between marital satisfaction and anxiety

because most effects ($k = 51$) were from studies that utilized community-based samples

from within the United States.

Association Between Marital Instability and Anxiety

The current study also examined the relationship between marital instability (i.e., divorce or separation) and anxiety. Specifically, previously reported odds ratios were analyzed using CMA 3.0 Software, which were then transformed into correlation coefficients for result reporting. A significant positive association between marital instability and anxiety was found ($k = 39$, $r = 0.092$, 95% CI [0.049, 0.135], $p < 0.001$). Study design was the only variable to significantly moderate this relationship between marital instability and anxiety ($Q = 4.546$, df $= 1$, $p = 0.033$). Specifically, the association was significant for effects that relied on cross-sectional data ($k = 21$, $r = 0.166$, 95% CI [0.062, 0.169], $p < 0.001$), but not for effects that relied on longitudinal data. Thus, the direction of the association could not be examined as a potential moderator. Spouses who had experienced divorce or separation reported higher levels of anxiety, regardless of gender ($k = 25$, $r = 0.089$, 95% CI [0.039, 0.139], $p = 0.001$). Specifically, marital instability was associated with higher anxiety for both husbands ($k = 7$, $r = 0.100$, 95% CI [0.022, 0.176], $p = 0.012$) and wives' ($k = 7$, $r = 0.133$, 95% CI [0.039, 0.224], $p = 0.006$).

All studies examined marital instability in relation to the presence of self-reported anxiety disorders (i.e., categorical anxiety), although no studies diagnosed anxiety as part of their study. Marital instability was significantly related to reported Agoraphobia ($k = 5$, $r = 0.129$, 95% CI [0.045, 0.210], $p = 0.003$) and the presence of Panic Disorder (PD) and Agoraphobia considered together ($k = 11$, $r = 0.080$, 95% CI [0.010, 0.149], $p = 0.025$. Although not significant at the $p < 0.05$ level, the association between marital instability

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and social phobia was trending toward significance at $p < 0.10$ ($k = 8$, $r = 0.044$, 95% CI [-0.006, 0.093], $p = 0.085$). The associations between marital instability and GAD, PD, and Specific Phobia were not significant. No effect sizes for other specific anxiety disorders were reported in relation to marital instability.

The presence of control variables did not impact the association between marital instability and anxiety. All previously reported effect sizes included control variables of some kind. The association remained significant when analyzing effect sizes that controlled for depression ($k = 36$, $r = 0.085$, 95% CI [0.038, 0.132], $p < 0.001$) or substance use ($k = 33$, $r = 0.101$, 95% CI [0.022, 0.179], $p = 0.012$). All effects related to marital instability and anxiety controlled for demographic factors. None of the studies that examined marital instability and anxiety specified whether spouses were in their first marriage or a higher-order marriage. Additionally, all studies relied on community based samples. Not enough data were available to examine any potential differences based on sample location. Therefore, no moderation analyses related to type of marriage, sample type, or sample location were assessed.

Assessment of Potential Publication Bias

To examine the potential "file drawer problem," analyses in CMA were conducted to examine the presence of publication biases that may impact the significant results. Specifically, these analyses determine if any publication biases (e.g., missing data from unpublished dissertations, theses, or other publications) may impact the overall findings. Duval and Tweedie's trim and fill test (Duval & Tweedie, 2000) and

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Rosenthal's Classic Fail-Safe N test (Rosenthal, 1979) were conducted to assess any present publication biases using the CMA 3.0 software (see Table 4.4).

First, using Duval and Tweedie's Trim and Fill test (Duval & Tweedie, 2000), the symmetry of the distribution of studies was examined. In the absence of publication biases, the studies should be symmetrically distributed on a funnel plot around the overall effect size. Duval and Tweedie's Trim and Fill test evaluates the symmetry of the distribution of studies in the current meta-analysis and imputes any potential missing studies onto the funnel plot (Duval & Tweedie, 2000). For overall marital quality, the test imputed ten possible missing studies. For the specific marital quality indicator analyses, the test imputed zero possible missing studies for positive marital behaviors, negative marital behaviors, and marital distress. This suggests that, according to Duval and Tweedie's Trim and Fill Test (Duval & Tweedie, 2000), these analyses were robust against publication bias. In contrast, the test imputed two potential missing studies for the meta-analyses related to anxiety and marital adjustment and marital satisfaction and three potential missing studies for the analyses regarding marital instability. Nonetheless, the impact of the imputed studies was trivial to the analyses (i.e., change in effect size was minor), which suggests that the effect size reported by the analyses is a valid estimate (Borenstein, Hedges, & Higgins, 2009). Overall, this test suggested low-risk for publication bias for all analyses.

Next, the Classic Fail-Safe N test was used to examine how many studies without significant findings would need to be included in the current study to bring the p-value above the .05 level (CMA 3.0 Manual; Borenstein, Hedges, Higgins, & Rothstein, 2014;

Rosenthal, 1979). Specifically, this test helps determine how many missing studies (e.g., unpublished studies due to 'null' findings, unpublished dissertations, etc.) with a mean effect of zero would be needed to impact and nullify the significant findings in these analyses. This test multiplies the number of studies in the meta-analysis by five and then adds ten to that number. If the Classic Fail-Safe N is larger than this number, the analyses are not impacted by potential publication biases. The Classic Fail-Safe N for the analyses related to overall marital quality (i.e., combined marital quality indicators) was 1,690. In other words, the current study would need to be missing 1,690 studies for the effect to be nullified. Thus, the Classic Fail-Safe N test found that the overall marital quality analyses were robust against any potential publication biases. Examining the individual indicators of marital quality, the Classic Fail-Safe N for the analyses related to positive marital behaviors was 65. Because there were 5 studies in these analyses, that means that there would need to be 13 missing nonsignificant studies for every observed study for the effect to be nullified. Similarly, there would need to be 28.2, 30.3, 17.63, and 7 missing 'null' studies for every observed study in the analyses for negative marital behaviors, marital adjustment, marital satisfaction, and marital instability, respectively. In other words, the Classic Fail-Safe N tests for the meta-analyses examining the association between anxiety and positive marital behaviors, negative marital behaviors, marital adjustment, marital satisfaction, and marital instability were all robust against any potential "file drawer" biases. In contrast, the Classic Fail-Safe N test marital distress suggest that there may be potential publication biases present in the analyses. The Classic Fail-Safe N for the analyses regarding marital distress was 9, which is smaller than the

calculated number of 35. Therefore, these analyses may not be robust to potential

publication biases and should be interpreted considering these findings.

In summary, most of the analyses appear to be robust against any potential

publication biases. Specifically, the publication biases statistical tests suggest that the

current analyses examining associations between overall marital quality or instability, as

well as marital behaviors, marital adjustment, or marital satisfaction and anxiety have

low-risk for publication bias.

CHAPTER V

DISCUSSION

Anxiety disorders are one of the most commonly diagnosed psychological difficulties in America (National Institute of Mental Health, 2017) and globally (Baxter, Scott, Vos, and Whiteford, 2013). Although researched less often than other mental health factors (e.g., depression), previous research has consistently demonstrated a relationship between marital quality or instability and anxiety (e.g., Chatav & Whisman, 2007; Gana et al., 2016; Goldfarb et al., 2007; Whisman, 2007). Missing from the existing literature, however, is a comprehensive meta-analytic review that effectively summarizes the nature and strength of these associations. The current study aimed to address this gap in the literature by analyzing previously reported effect sizes investigating these linkages with meta-analytic techniques. Marital quality has been conceptualized as a broad construct that includes various aspects of marital functioning and satisfaction. Accordingly, the current study investigated the associations between marital quality and anxiety based on underlying concepts, including positive and negative marital behaviors and interactions, marital adjustment, marital distress, and marital satisfaction. Consistent with hypotheses, the current study found significant associations between marital quality and anxiety and marital instability and anxiety. Higher marital quality was associated with lower anxiety, whereas experiences of marital instability

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were associated with higher anxiety. In addition to the broad associations between marital quality or instability and anxiety, the current study also used post hoc analyses to examine specific associations for underlying indicators of overall marital quality (e.g., marital satisfaction). Finally, the current study examined the potential impact of several moderation variables. Study design, direction of longitudinal association, gender, operationalization of anxiety, treatment of the marital quality factor, type of marriage, sample location, and the use of control variables were examined as potential moderating variables. The following sections provide commentary on these research findings, including connections to previous research and recommendations for future research.

Relationship Between Marital Quality or Instability and Anxiety

Aligned with previous research, the current study hypothesized that there would be a negative relationship between marital quality and anxiety, such that higher levels of overall marital quality would be associated with lower anxiety. When all marital quality indicators (i.e., behaviors, adjustment, distress, and satisfaction) were recoded to reflect high and low levels of overall quality and combined to analyze an overall association, a significant negative correlation between a marital quality an anxiety emerged ($r = -0.228$). As expected, when overall marital quality was high, evidenced by high levels of positive marital factors or low levels of negative marital factors, anxiety tended to be lower. In other words, high levels of marital quality were associated with low levels of anxiety.

Additionally, post hoc analyses demonstrated that all individual indicators of marital quality were significantly correlated with anxiety. Specifically, positive marital

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behaviors, marital adjustment, and marital satisfaction were all negatively correlated with anxiety. In other words, higher levels of these positively oriented marital quality factors were associated with lower levels of anxiety. In contrast, negative marital behaviors, marital distress, and marital instability were all positively correlated with anxiety, which means that higher levels of these negatively oriented marital factors were associated with higher levels of anxiety. Thus, all marital quality factors were associated with anxiety in the expected directions. More specifically, significant negative correlations between positive marital behaviors and anxiety ($r = -0.250$), marital adjustment and anxiety ($r = -0.307$), and marital satisfaction and anxiety ($r = -0.172$) were found. These findings suggest that more positive marital behaviors, such as intimacy, communication, and emotional support, were related to low levels of anxiety. Similarly, well-adjusted spouses and spouses that are satisfied in their marriages tend to have lower levels of anxiety. Although the magnitude of the correlations were small to moderate (e.g., Card, 2012; Cohen, 1969), findings were consistent with previous research that has linked anxiety to lower overall marital quality (Gana et al., 2016). Similarly, previous research has shown that anxiety may lower couples' overall satisfaction with their marriage over time (Rehman et al., 2015; Renshaw, Blais, & Smith, 2010; Stevens et al., 2013). Marital adjustment has also been linked to lower anxiety symptoms and disorders (Whisman & Baucom, 2012). When anxiety symptoms increase, however, spouses may experience declines in marital adjustment (Dehle & Weiss, 2002). In contrast to the findings related to positive marital factors, the remaining marital indicators demonstrated significant positive correlations between negative marital behaviors and anxiety ($r = 0.283$) and

marital distress and anxiety ($r = 0.134$). Therefore, higher levels of negative marital interactions, such as criticism, aggression, or abuse were related to higher anxiety. These findings are also consistent with the literature. For example, anxiety has been linked to higher rates of negative marital interactions (Zaider, Heimberg, & Iida, 2010) and negative marital interactions, such as conflict, have also been linked to higher rates of anxiety disorders (Bertera, 2005). Additionally, the current study found that spouses who were distressed tended to have higher levels of anxiety, which is also consistent with the literature (e.g., Whisman, 2007; Whisman & Baucom, 2012; Whisman & Uebelacker, 2006).

It was also hypothesized that experiences of marital instability (i.e., divorce or separation) would be associated with higher reports of anxiety. In support of this hypothesis, there was a positive, albeit small, correlation between marital instability and anxiety such that spouses who experienced marital instability tended to have higher rates of anxiety. This is aligned with previous research, which has consistently demonstrated that marital instability has been linked to higher rates of anxiety (Breslau et al., 2011; Chatav & Whisman, 2007; Mojtabai et al., 2017). Levels of anxiety have been shown to be higher at the time of divorce and remain higher across time for spouses that have divorced compared to spouses that have remained continuously married (Overbeek et al., 2006; Wade & Pevalin, 2004).

Moderating Variables

Study Design

It was hypothesized that the strength of the association between marital quality or instability and anxiety would be stronger among the effect sizes from cross-sectional study designs than the effect sizes from longitudinal study designs. Results revealed that study design moderated the association between marital instability and anxiety, but not the association between marital quality and anxiety. Specifically, no moderation related to study design was significant in the marital quality analyses, with no significant differences found between cross-sectional and longitudinal findings. Stated simply, the association between marital quality and anxiety was significant both for cross-sectional and longitudinal studies in the overall marital quality analyses. Additionally, post hoc analyses revealed that all underlying indicators of marital quality were significantly correlated with anxiety regardless of study design, except for marital adjustment in which there were not enough data to examine the longitudinal association. All effect sizes for the association between marital quality and anxiety were small to moderate, with correlations across study design ranging from $r = 0.123$ to $r = 0.320$ (Card, 2012; Cohen, 1969).

In contrast to the marital quality analyses, results revealed significant differences in the association between marital instability and anxiety based on study design. Specifically, the association between marital instability and anxiety was significant for cross-sectional but not longitudinal studies. This finding is consistent with previous meta-analytic research that found cross-sectional findings to be stronger than longitudinal

findings for the association between marital quality and well-being (Proulx et al., 2007).

Additionally, given the relationship between marital quality and anxiety, it is possible

that the longitudinal association between marital instability and anxiety was not

significant because spouses have separated from low-quality marriages. Amato and

Bryndl (2007) found that divorce was related to higher reported life happiness for

spouses who perceived their previous marriage to be distressing, whereas divorce was

associated with lower life happiness for spouses who perceived their previous marriage to

be of high-quality (i.e., low distress marriage). In other words, it is possible that ending a

low-quality marriage may protect individuals from the negative marital interactions and

experiences that relate to anxiety, which may actually serve to support spouses' mental

health across time. In contrast, if individuals end a marriage that was considered to be of

high-quality, it may be associated with higher anxiety across time. Thus, it is possible

that the null finding for longitudinal studies is a result of additional covariates that need

to be examined in future research. Future research should continue to unpack these

associations, such as examining how marital quality impacts (i.e., moderation, mediation)

the association between marital instability and anxiety.

Direction of Longitudinal Association

Previous research has investigated longitudinal associations between marital

quality and other mental health outcomes. For example, Proulx et al. (2007) used meta-

analytic techniques to examine the strength of the association between marital quality and

well-being in both directions. It was found that marital quality was a better predictor of

subsequent well-being than well-being was of subsequent marital quality. Although this

study primarily focused on depressive symptoms and general aspects of well-being, similar hypotheses were drawn for the current study. Of the longitudinal effects in the current study, the majority examined how marital factors impact subsequent anxiety ($k = 58$) as opposed to examining how anxiety impacts subsequent marital quality or instability ($k = 20$). In regard to marital instability, the longitudinal findings were not significant in either direction. The overall finding related to marital quality, however, was found to differ based on the longitudinal direction of the association. Consistent with Proulx et al. (2007), there was a significant longitudinal relationship from overall marital quality leading to subsequent anxiety. In contrast, the longitudinal association from anxiety to overall marital quality was not significant. This is aligned with previous research and theory, which has demonstrated that decreases in marital quality are linked to increases in anxiety across time (Whisman et al., 2018). Similarly, spouses who perceive their marriages to be of lower quality are at higher risk for developing anxiety disorders, including GAD and panic attacks (Priest, 2013). Therefore, although previous research has found that marital status may serve as a protective factor against anxiety (e.g., Scott et al., 2010), when the quality of those marriages are examined the findings are more complex (Goldfarb et al., 2007). Findings from the current study suggest that high quality marriages may be related with lower anxiety across time, whereas low quality marriages may be related to higher anxiety across time. These results demonstrate support for the Marital Discord Model of Depression (Beach et al., 1990), which postulates that marital distress leads to decreases in spousal support and increases in marital stress, which serve to amplify depressive symptoms. Although this theoretical

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model describes the association between marital quality and depression, it has been used to examine associations between marital quality and anxiety as well (e.g., Gana et al., 2016; Whisman, 2018).

In addition to the main finding that overall marital quality was a better predictor of anxiety than vice versa, the current study also examined these competing longitudinal hypotheses with post hoc analyses as it pertains to marital satisfaction separately. The current study was unable to use post hoc analyses to examine directional associations between anxiety and the other indicators of marital quality, including marital behaviors (positive and negative), marital adjustment, or marital distress because either a) not enough studies related to that marital quality indicator examined the longitudinal association in both directions, or b) studies have not examined the association longitudinally. Specifically, previous research has focused primarily on how marital factors impact subsequent anxiety. Therefore, the only specific marital quality indicator that could be used to examine these competing hypotheses regarding directionality was marital satisfaction.

The direction of the longitudinal association did not moderate the association between marital satisfaction and anxiety, which was significant in both longitudinal directions. Marital satisfaction and anxiety, therefore, may both act to exacerbate and worsen the other. This is aligned with how scholars and researchers have theorized on these associations in the past. Competing directional hypotheses related to the associations between marital quality or instability and anxiety have been debated in the empirical literature. Most scholars agree that significant associations exist in both

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directions, with both marital distress or instability and anxiety potentially exacerbating the other (Goldfarb et al., 2007; Simon, 2014). For example, anxiety has been shown to lower marital satisfaction over time (Goldfarb et al., 2013; Stevens et al., 2013). Thus, in addition to the Marital Discord Model (Beach et al., 1990), this provides some support for the Vulnerability-Stress-Adaptation Model (VSA; Karney & Bradbury, 1995). The VSA Model posits that enduring vulnerabilities, such as anxiety, impact ongoing marital quality and increase the risk for marital instability. Because anxiety may strain the marriage and increase tension between spouses (Bradbury & Karney, 2004), it may impact the way spouses interact (e.g., Salzer et al., 2008) and lead to an increased need for support from non-anxious spouses, which can begin to feel burdensome (Marcaurelle et al., 2003; Paprocki & Baucom, 2017; Yoon & Zinbarg, 2007).

Overall, the current study found that the association from marital quality to anxiety was significant, whereas the association from anxiety to marital quality was not significant. Nonetheless, when focusing in on marital satisfaction alone, significant associations between marital satisfaction and anxiety were found in both directions. In other words, marital satisfaction was found to predict subsequent anxiety and anxiety predicted subsequent marital satisfaction. Future research should continue to investigate the linkages between all marital quality factors and anxiety in well-designed longitudinal studies to better understand the complex and dynamic associations between these variables across time. Overall the current study finds more support for the Marital Discord Model of Depression (Beach et al., 1990), but additional research is needed to effectively investigate competing directional hypotheses relating to associations between

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other specific marital quality factors and anxiety, such as marital behaviors and interactions, marital adjustment, and marital distress. Future research will benefit from examining these marital and anxiety factors across the lifespan to better understand patterns of associations across time. Specifically, examining these underlying marital quality indicators will provide scholars with a better understanding of how marriage and anxiety are related. Specifically, understanding the associations between these marital quality factors and anxiety is needed to shed light on the "marriage benefit" (e.g., Scott et al., 2010), which is likely related more to the quality of marriages than marital status alone (Goldfarb et al., 2007). A better understanding of the ongoing associations between marital quality or instability and anxiety is needed to inform future research, assessment and treatment procedures, and policy. These implications are discussed in more depth below.

Gender

Although most previous research has examined how wives' anxiety impacts marriages (Goldfarb et al., 2007), some research has inspected gendered patterns in these associations in samples that include both husbands and wives. Some of that research has failed to find gendered differences in the associations between marital quality or instability and anxiety (e.g., Chatav & Whisman, 2007; Whisman, 2007; Whisman et al., 2000; Yoon & Zinbarg, 2007). Other researchers, however, have found significant gender differences for these associations. For example, some research has found husbands' anxiety to be more detrimental to marriages than wives' anxiety (Rehman et al., 2015; Whisman et al., 2018). Specifically, husbands' anxiety has been linked to lower marital

satisfaction (Rehman et al., 2015), lower levels of marital adjustment (Dehle & Weiss, 2002), and higher marital discord (Whisman et al., 2018) for themselves and their wives across time. Wives' anxiety, in contrast, was not related to husbands' marital outcomes. Scholars have postulated that observed gender differences in the associations between marital quality or instability and anxiety may relate to gender role expectations and differences in available social supports between husbands and wives (Whisman et al., 2018). Husbands' expressions of anxiety may also go against socialized expectations of masculinity, which may strain the marriage (Simon, 2014). Relatedly, the current study hypothesized that the strength of the associations between marital quality and anxiety would be stronger when husbands have anxiety than when wives have anxiety. Consistent with this hypothesis, the current study found that husbands' anxiety was more strongly related to husbands' and wives' overall marital quality. No moderation was found for gender in the association between marital instability and anxiety.

Post hoc analyses in which the underlying indicators of marital quality were assessed separately, however, found that gendered differences in the associations between marital quality and anxiety varied based on the marital factor considered. For example, inconsistent with the overall finding, positive marital behaviors, marital distress, and marital satisfaction were more strongly related to wives' anxiety than husbands' anxiety. Specifically, wives' anxiety was significantly correlated with wives' positive marital behaviors, whereas husbands' anxiety was not correlated with husbands' positive marital behaviors. Similarly, husbands' anxiety was significantly correlated with husbands' distress and satisfaction, but not wives' distress or satisfaction. Wives' anxiety, however,

was correlated with both husbands' and wives' distress and satisfaction. In contrast, husbands' anxiety was significantly associated with both husbands' and wives' adjustment. Wives' anxiety was associated with wives' adjustment, but there were not enough data to examine the association between wives' anxiety and husbands' adjustment. Finally, negative marital interactions were significantly related to anxiety for both husbands and wives. In fact, both husbands' and wives' negative marital interactions were related to their own and their partner's anxiety. Husbands' anxiety had a significantly stronger correlation to husbands' negative behaviors than wives' negative behaviors. Similarly, wives' anxiety had a significantly stronger relationship to wives' negative marital behaviors than husbands' negative marital behaviors. In general, these results suggest that anxiety is related to negative marital behavior for both spouses.

Overall, husbands' anxiety was correlated with husbands' and wives' negative marital behaviors and adjustment, but only husbands' distress or satisfaction. Wives' anxiety, in contrast, was significantly associated with all marital factors for husbands and wives, except for husbands' positive marital behaviors and adjustment for which that were not enough data to analyze. Thus, when marital quality indicators were examined separately, the significance of the associations varied by gender and marital factor, which suggests that gender may be an important variable that should continue to be examined in the research. For example, wives may be more sensitive to positive marital behaviors than husbands, whereas negative marital behaviors impact both husbands and wives. Similarly, wives' anxiety may relate to all marital quality factors for husbands, whereas husbands' anxiety only relates to wives' negative marital behaviors and adjustment.

Therefore, the overall finding (i.e., combining effects from all marital quality indicators) suggests that husbands' anxiety is more strongly associated with marital quality than wives' anxiety. Nonetheless, some of the post hoc findings related to individual indicators of marital quality (e.g., satisfaction) are inconsistent with previous research that has found husbands' anxiety to be more impactful on marriages. These findings are consistent with other research that has failed to find gendered differences. When examining specific underlying indicators of marital quality, the current study found that in some cases wives' anxiety was more strongly related to marital quality than husbands. In other cases husbands' anxiety was more strongly related to marital quality than husbands. It is possible that the current study provided an additional level of specificity by investigating specific underlying marital quality factors, which allowed for a more comprehensive view of the associations. Nonetheless, investigating gendered patterns and nuances in these associations is an important direction for future research given these results. Future research should continue to examine associations between specific underlying marital quality factors and anxiety, which may differ by gender. Additionally, future research should strive to examine mediating variables that may help explain why the associations between various marital quality factors and anxiety may differ for husbands and wives. The current meta-analytic study was only able to examine broad associations by gender but is unable to examine the processes through which these associations exist or how they are experienced by spouses. Future research should strive to more accurately understand the ongoing nature of these associations, including what may drive gendered differences in these associations.

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Operationalization of Anxiety

The current study coded how anxiety was operationalized and measured in previous research. Most effect sizes measured anxiety as a continuous variable based on symptom counts ($k = 118$), but some studies also measured anxiety as a categorical variable that distinguished between individuals that did and did not have anxiety ($k = 64$). Overall, the association between marital quality and anxiety was significantly different based on how anxiety was operationalized. Nonetheless, the effect sizes of each association were similar. When all marital quality indicators were considered in the overall analyses, the association between marital quality and anxiety was $r = -0.211$ when anxiety as operationalized continuously and $r = -0.249$ when anxiety was operationalized categorically. Although how anxiety was operationalized was found to be a significant moderator, it is difficult to theorize on the nature of these differences due to the similar magnitude of the correlations. Future research should continue to examine these associations between marital quality or instability anxiety, both when anxiety is operationalized as continuous and categorical. Additionally, future research should provide more specificity, such as examining the association between marital quality or instability and specific anxiety disorders. Not enough previous research examined specific anxiety disorders to investigate differences in the association between marital quality and anxiety based on the type of anxiety disorder (e.g., GAD, PD, Agoraphobia). Future research should continue to investigate anxiety using broad (e.g., anxiety symptoms) and specific (e.g., specific anxiety disorders) operationalizations to allow for a more accurate examination of the relationship between marital quality and anxiety.

The current study also used post hoc analyses to examine if differences based on the operationalization of anxiety existed in underlying indicators of marital quality. Apart from the association between marital satisfaction and anxiety, which was only significant among effect sizes that examined continuous symptom counts of anxiety, the associations between marital quality and anxiety tended to be significant regardless of how anxiety was measured. Specifically, associations between negative marital behaviors and marital distress were significant for effects that used symptom counts as well as effect sizes that relied on categorical measurements of anxiety (i.e., presence of anxiety disorders). Too few effect sizes were available to examine differences in the relationship between anxiety and positive marital behaviors, marital adjustment, or marital instability based on operationalization of anxiety.

Similarly, most studies relied on self-reported anxiety symptoms or disorders ($k = 125$) as opposed to using assessment methods informed by the DSM to diagnosis participants with anxiety in their study ($k = 104$). Overall, diagnostic procedures did not moderate the association between marital quality and anxiety. Some differences did emerge in post hoc analyses, however, when the underlying indicators of marital quality were examined separately. For example, the association between marital satisfaction and anxiety was only significant among effects that used self-reported anxiety without confirming diagnoses. No differences were observed based on the diagnostic procedures employed in the effects that examined negative marital behaviors and anxiety. Not enough data were available to examine differences based on diagnostic procedures for any other associations between marital quality or instability and anxiety. Future research

should increase the level of specificity related to anxiety. For example, rather than examining broad categories of anxiety, research would benefit from more studies that focus on specific anxiety disorders and rely on rigorous diagnostic assessments. Additionally, it is likely that certain anxiety disorders are more detrimental to marriages than others. Examining more specific anxiety disorders in relation to marital outcomes is an important direction for future research. Additionally, because most adults experience anxiety sometimes, providing information about whether the individuals in the study reach clinical thresholds would provide useful information to understand these associations.

Treatment of Marital Factor

The current study examined a variety of marital quality related factors in relation to anxiety. Because the current study examined specific marital quality indicators that are positively or negatively oriented, the strength of these associations based on the valence of those indicators could be compared statistically. Treatment of the marital factor was not found to moderate the associations between overall marital quality and anxiety. In other words, the association between marital quality and anxiety was not significantly different between positively oriented marital quality indicators, such as adjustment and satisfaction ($r = -0.227$) and negatively oriented marital quality indicators, such as distress ($r = -0.209$). All correlation coefficients demonstrated significant small to moderate associations between marital factors and anxiety. The strength of the correlations between the positively oriented marital factors (i.e., positive marital behaviors, marital adjustment, and marital satisfaction) ranged from $r = -0.172$ to $r = -$

0.307, whereas the strength of the negatively oriented factors (i.e., distress and negative behaviors) were $r = 0.134$ and $r = 0.283$, respectively. Contrary to hypotheses, the negatively oriented marital factors did not have significantly larger effect sizes than the positively oriented marital factors. Thus, the findings from the current study are inconsistent with previous research that found negatively oriented marital factors to be more strongly related to well-being (Proulx et al., 2007).

Previous research has been critiqued for adopting deficit-based models and examining primarily negative aspects of the marital experience, such as conflict (Fincham & Beach, 2010a). The current study found moderate correlations between anxiety and all marital quality factors, regardless of whether those factors were positively or negatively oriented. Additionally, moderation analyses found no evidence that the associations were significantly different based on the valence of the marital quality indicators. Thus, all marital quality factors, including both positive and negative marital behaviors, marital adjustment, marital distress, and marital satisfaction are related to anxiety. Future research should continue to examine positive factors associated with marriage that are seldom included in the research, such as love and admiration (e.g., Claxton & Perry-Jenkins, 2008; Fincham and Beach, 2010a). In doing so, research will be able to effectively differentiate which marital factors are most strongly associated with anxiety, which can then be used to inform research, education, and treatment.

Type of Marriage

Previous research has found that individuals in their first marriage espouse better mental health outcomes than never married, divorced, or widowed individuals

(Mastekaasa, 1992; Scott et al., 2010). Nonetheless, few studies effectively control for or distinguish if spouses in their sample are in their first marriage or a higher order remarriage. The current study aimed to assess if marriage type (i.e., first marriage or higher-order marriage) moderated the association between marital quality or instability and anxiety. Most studies in the meta-analysis did not provide information about the type of marriage for the spouses in their sample. In other words, in most cases it is unknown if spouses in were in their first marriage or a higher-order remarriage. Specifically, although some effects indicated that their sample was comprised of spouses in their first marriage ($k = 46$), most effects were based on samples in which the type of marital union was unknown or not specified ($k = 105$). Overall, no significant differences were found for the association between marital quality and anxiety based on whether studies sampled spouses that were in their first marriage compared to samples that did not specify marital type. Unfortunately, more effects relied on samples of married individuals in general without specifying marital type, which may include individuals in their first marriages as well as those in higher order remarriages, than effects that specifically sampled spouses in their first marriages. Thus, the current study was unable to differentiate between spouses in their first marriage and spouses that were in higher order marriages (i.e., in their second, third, or higher marriage). Previous research has suggested that some differences may exist between those that are in their first marriage and those that have been married more than one time. For example, although first-marriage is often viewed as a protective factor against mental health issues (e.g., Scott et al., 2010), remarrying after divorce may be associated with a higher risk for experiencing depression (Hiyoshi et al.,

2015). Future research should strive to examine how type of marriage may impact the associations between marital quality or instability and anxiety, which would provide more nuanced and specific information that may be used to inform research and treatment. Specifically, future research should provide descriptive information about the composition of the samples and analyze differences based on first marriage and higher order remarriages to better understand the connections between marital quality or instability and anxiety.

Sample Location

The current study aimed to investigate if differences in the associations between marital quality or instability exist as a function of sample location. In doing so, the current study hoped to shed light on any potential contextual differences that may impact the nature of these associations. For example, sociohistorical and political differences across geographical areas may impact marital relationships, including legal and/or cultural barriers to divorce such as stigma or no-fault divorce laws. Although the current study was unable to examine these processes directly, examining differences related to sample location may inform future research to do so. Overall, the current study found that the association between marital quality and anxiety was significantly stronger among studies that utilized samples drawn from outside the United States ($r = -0.310$) than studies that recruited samples from within the United States ($r = -0.187$).

There were not enough data to examine differences based on sample location for marital instability or to examine post hoc analyses for any one specific underlying marital quality factor (e.g., satisfaction) due to small samples of effects from within or outside

the United States. In other words, most effect sizes for any given analysis (e.g., association between marital adjustment and anxiety) tended to either originate within, or outside the U.S. For example, all but one study investigating the associations between marital instability and anxiety utilized international samples. Similarly, all effects examining the associations between marital behaviors and anxiety came from studies that sampled within the United States. Thus, the current study was unable to examine any differences that might exist as a function of sample location for these analyses.

Future research should continue to examine these associations in samples from within and outside the United States, with careful attention given to how geographical, cultural, legal, and other factors may exist that impact these associations. For example, there are legal barriers to divorce that may be different in various locations. Additionally, in some places legal and social structures may lead to a lack of access to divorce, which may result in higher marital distress and anxiety if spouses feel that they have no way out of the marriage. Thus, the association between marital instability and anxiety may be lower in places that have strict divorce laws, high religious influences, or stigmas associated with divorce. Conducting more research with samples drawn from various geographical locations will provide more information about how these associations differ based on contextual factors. Future research should pay careful attention to the composition of samples to examine these associations in various contexts, which may differ based on sociocultural expectations regarding marriage and anxiety. Additionally, future research should design studies that investigate how contextual influences impact these associations through longitudinal, mediational, and qualitative research. In doing

so, the empirical literature will be better equipped to inform theory, research, and treatment interventions in various contexts.

Control Variables

The current study examined if the inclusion of control variables would moderate the association between marital quality or instability and anxiety. Overall, the use of control variables did not moderate the association between marital quality and anxiety or the association between marital instability and anxiety. In other words, there were no statistical differences in the association between marital quality or instability when control variables, including depression, substance use, or demographic variables, were included in the analyses. This suggests that the relationships between marital quality or instability and anxiety hold even when considering additional covariates that also relate to marital outcomes.

In addition to the analyses examining overall marital quality and instability, the current study also investigated the inclusion of control variables in post hoc analyses that examined underlying indicators of marital quality separately. Few differences emerged based on the inclusion of control variables in these analyses. For example, the associations between marital distress or marital satisfaction and anxiety were not significant among effects that controlled for depression (although both were trending at $p = 0.060$ and $p = 0.096$, respectively). Similarly, the association between marital distress and anxiety was not significant in effects that controlled for demographic factors ($p = 0.60$). In most cases, however, the associations between marital quality or instability and anxiety were significant regardless of whether additional control variables were included

or not. For example, marital behaviors and marital instability were both significantly correlated with anxiety regardless of whether depression was used as a control variable or not. Similarly, marital instability was correlated with anxiety regardless of whether substance use was controlled for, and negative marital behaviors were still significantly related to anxiety when demographic factors were included as covariates.

Previous research has demonstrated that marital quality and instability are also significantly related to depression and substance use (e.g., Cranford et al., 2011; Homish et al., 2009; Horn et al., 2013; Proulx et al., 2007). In fact, studies often examine depression, anxiety, and/or substance use in the same study (e.g., Gana et al., 2016; Mojtabai et al., 2017; Rehman et al., 2015; Whisman et al., 2018). Controlling for these additional factors, therefore, is paramount to calculating accurate effect sizes related to the associations between marital quality or instability and anxiety. Future research should continue to include covariate variables in the analyses to gather a complete picture of the mental health factors that correlate with marital quality and instability. Furthermore, due to high rates of comorbidity, it is likely that individuals who experience anxiety may also experience depression or substance use (APA, 2013; Valentiner et al., 2014). Therefore, it is crucial that researchers control for these variables to analyze the relationship between marital quality or instability and anxiety without confounding the results by the influence of other variables.

Implications for Research and Treatment

These findings provide a comprehensive statistical summary of the literature and may be used to inform future research and treatment related to marital distress and/or

anxiety. Married couples are interdependent, meaning their lives are connected and they rely on each other. What happens to one spouse impacts the other. This interdependence has helped marital scholars explain how anxiety may impact the entire marriage (Fals-Stewart, O'Farrell, & Birchler, 2004). For example, family-oriented theories have examined how stress and coping impact individuals as well as their intimate partners (e.g., Beach et al., 1990; Karney & Bradbury, 1995). For example, the Vulnerability-Stress-Adaptation Model claims that how married couples react to stress impacts the overall quality of their marriage (Karney & Bradbury, 1995). The theory suggests that individual characteristics and stress shared by the couple combine to impact how married couples interact, the quality of their marriage, and the likelihood that their marriage will end in divorce (Karney & Bradbury, 1995). Similarly, the Marital Discord Model of Depression (Beach et al., 1990) suggests that low marital quality may reduce social support and increase marital stress, which ultimately lead to higher depressive symptoms. The current study used these theoretical models to hypothesize about the longitudinal associations from marital quality or instability to anxiety in both directions. Overall, the current study found more support for the Marital Discord Model, evidenced by a significant longitudinal association from marital quality leading to anxiety. Nonetheless, some of the post-hoc analyses found support for the VSA Model. Although the current study was unable to examine mediation hypotheses due to constraints of meta-analytic research, scholars and theorists have speculated that these associations are related to increased stress and tension related to anxiety and marital distress, which spillover to impact functioning at the individual and marital levels.

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For example, anxiety can increase stress and tension between spouses. Couples experiencing anxiety may no longer participate in the same activities, their roles and responsibilities may change, and their communication and other interactions may become tense (Baucom, Stanton, & Epstein, 2003). Anxiety may also increase tension between spouses due to increased dependence on the non-anxious spouse (e.g., Marcaurelle et al., 2002; Yoon & Zinbarg, 2007), which may lead to accommodating behaviors that, unbeknownst to the couple, serve to increase both anxiety and marital distress (Baucom et al., 2003; Paprocki & Baucom, 2017). Similarly, marital distress has been found to increase symptoms of anxiety across time (Baucom et al., 2003; Whisman et al., 2000; Whisman & Baucom, 2012). Spouses who perceive low levels of support or high levels of negativity from their partners are at higher risk for developing anxiety (Bertera, 2005). Stated simply, scholars posit that anxiety contributes to marital distress, and marital distress contributes to anxiety. This may result in a vicious cycle of anxiety symptoms and negative marital interactions that may continue to get worse without help (Goldfarb et al., 2007; Whisman & Baucom, 2012). As couples focus on managing their marriage or their anxiety, they may not realize the affect the disorder has on their relationship and their mental health.

Although the current study was unable to analyze the ongoing processes through which these variables relate, it demonstrated significant cross-sectional and longitudinal associations between all marital quality indicators and anxiety. Furthermore, these associations remained when additional mental health factors, such as depression, were controlled for. Therefore, even when mental health factors that are often comorbid with

anxiety are considered (APA, 2013; Valentiner et al., 2014), the associations between marital quality and anxiety remain. This is important because in addition to comorbidity between mental health factors (e.g., depression, substance use, anxiety), marital quality has also been linked to depression (e.g., Proulx et al., 2007) and substance use (e.g., Cranford et al., 2011; Homish et al., 2009). The current study demonstrates that anxiety is also related to marital quality and instability, even after controlling for depression.

These findings may be used to inform future research and treatment procedures. For example, researchers and therapists have found that treating anxiety and marital distress together leads to better mental health and marital functioning (Baucom, Belus, Stanton, & Epstein, 2018). Despite this, anxiety is usually treated at the individual level with therapy and medication, without the involvement of spouses (National Institute of Mental Health, 2009). Understanding how anxiety impacts marriage and providing couples with tools to manage the disorder together is important for overall marital functioning and well-being. Thus, using this knowledge to support married couples' mental health, relationship, and overall well-being is a crucial future direction. This research can be used to inform therapeutic experiences, initiate policy discussions, and educate married couples. Specifically, this information can be used to develop treatment options that better support individuals with anxiety and married couples. Therapists who stay attuned to these links between anxiety and marriage can provide better assessments and more targeted interventions, which may reduce anxiety and strengthen the couple's relationship. Spouses of individuals with anxiety may also benefit from learning more about these links, which may help them better support their spouse without reinforcing

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their anxiety. Furthermore, understanding these linkages can be used to urge therapists and clinicians to assess risk for marital distress and anxiety concurrently (Schronbrun & Whisman, 2010). Because it is common for people with anxiety to have relationship difficulties, it is important to identify if these problems exist in those seeking treatment for anxiety disorders. This will allow therapists to individualize their treatment efforts to best help the individual and the married couple. This could include providing strategies to address both anxiety and relationship distress, involving spouses in treatment, or connecting couples with additional resources (Baucom et al., 2003). Researchers and practitioners have emphasized the importance of using couple-based therapies to target both marital distress and mental health outcomes (Baucom et al., 2018; Baucom, Whisman, & Paprocki, 2012; Bradbury & Karney, 2004; Marcaurelle et al., 2002). Understanding these associations is an important consideration needed to improve the care provided to couples and spouses experiencing anxiety because marital discord can undermine the effectiveness of individual treatment or interventions for mental health concerns (Baucom et al., 2012; Whisman & Baucom, 2012). Therefore, treating anxiety disorders can help improve the overall quality of the couple's relationship, but only if treatment also addresses the aspects of the relationship that anxiety burdened (Baucom et al., 2003).

In addition to recognizing the importance of assessing and treating marital distress and anxiety concurrently, the study also found some gender differences that may be used to inform therapeutic interventions. For example, it was found that husbands' anxiety was more impactful on both husbands' and wives' overall marital quality than wives' anxiety.

Thus, although it is important for practitioners to assess marital distress and anxiety concurrently in general, this is of utmost importance when husbands' present with anxiety. This information may also be useful to help tailor treatment efforts to the unique needs of husbands and wives presenting for marital and/or anxiety related treatment. For example, some scholars have posited that husbands' anxiety may be more strongly related to marital quality because husbands rely on social support primarily from their wives (Whisman et al., 2018). Therefore, in the presence of marital distress, husbands may not get the social support needed from their wives. Additionally, husbands' anxiety may challenge gendered norms and societal expectations regarding masculinity, which may strain the marriage (Simon, 2014). Findings from the current study support previous research that has shown the association between marital quality and anxiety to be stronger for husbands than wives. These findings may be used to tailor therapeutic interventions to the needs of specific couples. For example, if a couple presents for treatment and the husband experiences anxiety, therapists may be able to help the husband identify sources of social support in addition to their wives. The current study also found more nuanced information about gender differences in the associations between marital quality and anxiety that could help inform intervention efforts and future research. For example, it is possible that positive marital behaviors, such as closeness, communication, and emotional support are more impacted for wives' anxiety than husbands' anxiety. In contrast, negative marital behaviors were related to both husbands' and wives' anxiety. These gendered patterns may help shed light on the associations between marital quality or instability and anxiety, with husbands' anxiety relating more

to marital outcomes for the couple. Overall, the current study found that husbands' anxiety is more detrimental to marital quality for husbands and wives, but more research is needed to examine the processes through which these gendered patterns exist. This future research would provide more relevant and specific information that may be used to inform intervention efforts for marital distress and anxiety. Overall, the current study found that husbands' anxiety is more detrimental to marital quality for husbands and wives, but more research is needed to examine the processes through which these gendered patterns exist.

Additionally, the current study found no differences in the associations between marital quality and anxiety based on whether the marital quality indicators were positively (e.g., satisfaction) or negatively (e.g., distress) oriented. This may inform future research, treatment, and education efforts. For example, knowing that positively oriented marital factors also predict anxiety may help advise therapeutic experiences. It may be useful to know that increasing positive aspects of marriage (e.g., communication, intimacy, satisfaction) may be just as meaningful as reducing negative aspects of marriage (e.g., conflict, distress). Future research should continue to investigate both positive and negative dimensions of marital quality in relation to anxiety.

Future research should also increase the level of specificity that is provided about the marital unions examined in research. For example, the current study was unable to effectively examine differences between spouses in their first marriages and spouses in higher order remarriages because previous research has failed to consistently provide this information. Nonetheless, some research has suggested that how marriage and mental

health relate may differ based on type of marriage (e.g., Scott et al., 2010; Hyoshi et al., 2015). Additionally, the current study examined differences between how anxiety was operationalized (i.e., continuous or categorical). Future research should more clearly define anxiety, with clear distinctions between anxiety that reaches diagnostic thresholds and anxiety that is subclinical. The current study found some differences based on how anxiety was operationalized. Future research should strive to provide clear and detailed information about anxiety, including diagnostic procedures, type of anxiety disorders, clinical thresholds, and treatment status.

Finally, the current study found some differences in the associations between marital quality and anxiety based on sample location. Although the current study was unable to examine specific contextual influences that may drive these differences, it is possible that sociohistorical and political influences impact these associations. For example, no-fault divorce laws and societal or cultural stigmas associated with marital therapy or divorce may impact the associations between marital quality and anxiety. The current study demonstrated that the associations may differ based on where the samples were recruited (i.e., within the United States vs internationally), but additional research is needed to unpack this finding. Additionally, much of the research on the associations between anxiety and specific marital indicators (e.g., adjustment, instability) is conducted either within or outside the United States. Future research should investigate these associations in various geographical locations and in various contexts to examine what differences exist, and what drives those differences. For example, future research should examine if differences exist as a function of societal expectations regarding marriage and

divorce, clinical practices for diagnosing or assessing anxiety, and other contextual influences.

In summary, the current study demonstrated moderate associations between marital quality or instability and anxiety that may be used to inform future research and treatment efforts. Additionally, future research should continue to investigate the associations between marital quality or instability and anxiety with additional levels of specificity and context. For example, future research may benefit from continuing to examine moderating and mediating variables to further elucidate the nature of these associations. Additionally, marital research should continue investigating the various factors that impact marital functioning to inform preventative interventions that can promote high quality marriages and support mental health (Bradbury & Karney, 2004). Likewise, more research should examine treatment outcomes that address anxiety and marriage concurrently, especially in the presence of additional psychological difficulties or marital stressors. Overall, understanding how anxiety impacts marriage is crucial for couples, practitioners, and researchers. The current study may be used to inform future research, as well as assessment and treatment procedures.

Limitations

Although the current study has statistically summarized broad associations between marital quality or instability and anxiety using meta-analytic techniques, the current findings should be interpreted in the scope of the study's limitations. The current study is limited by the constraints of meta-analytic procedures, which do not provide opportunity to examine complex research questions. Instead, meta-analytic research

provides generalized information about broad connections between variables and the

presence of moderation. No mediational hypotheses can be examined with meta-analytic

research, which limits the current study from commenting on the processes through

which these associations may exist. Meta-analytic procedures are also limited by the

scope of previously reported research and can only analyze the marital and anxiety

factors that have been considered in previous research.

For example, the current study was unable to examine if treatment status impacts

the association between marital quality or instability and anxiety. The data did not permit

the current study to examine if there were any differences between individuals or couples

who are receiving treatment for anxiety and/or marital distress and those who are not

receiving treatment services because very few studies addressed these factors. It can't be

assumed that having a diagnosis of anxiety or experiencing marital distress or instability

is inherently bad, especially if individuals are receiving treatment and building strategies

to cope. Previous research has shown that treating mental health disorders, including

anxiety, may lower the risk for divorce (Mojtabai et al., 2017). Therefore, to ignore

treatment status is a limitation in the current research. Relatedly, most studies have relied

on deficit-based approaches to examine these linkages. For example, anxiety symptoms

are often considered a risk factor for marital distress. Few studies concurrently examine

individual strengths and resiliencies that may protect spouses with anxiety symptoms

against negative marital outcomes. The deficit-based approach has been critiqued in

marital research (Fincham & Beach, 2010a). The empirical findings provided here are

largely informed by studies that have adopted the deficit-based model, which frames

anxiety as a risk factor for marital distress and divorce but fails to address any protective factors. Future research will benefit from incorporating more strengths-based perspectives to research and theory development, which may include considering how treatment services support spouses' abilities to manage anxiety and cope with marital distress. Unfortunately, because very few studies indicated if the sample was comprised of individuals in treatment, seeking treatment, or not receiving any treatment for anxiety and/or marital distress, it was impossible to use these treatment factors as moderating variables. Future research should specify the treatment status of individuals and couples in the sample so that these factors can be examined.

Additionally, previous research has shown that anxiety prior to marriage may impact who people choose to marry and impact how well that marriage functions (Carlson, 2012). Previous research has seldom examined how anxiety may predict entry into marriage (e.g., Yoon & Zinbarg, 2007). This may be a particularly relevant direction for future research given that the National Institute of Mental Health estimates that 31.9% of adolescents aged 13 – 18 experience anxiety (National Institute of Mental Health, 2017). The current study focused primarily on married spouses and did not address how anxiety may predict marital experiences (e.g., who one chooses to marry) prior to entering a marital union. Future research should continue to address these factors and develop long-term longitudinal studies that may follow individuals throughout the lifespan, including assessing anxiety before, during, and after marital unions. Additionally, more prospective longitudinal studies that examine associations between marital quality and anxiety across time will provide more information about the strength

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of the associations in each direction. Specifically, studies that follow individuals and couples across time will be better equipped to address issues related to social causation and social selection (Horn et al., 2013). Prospective longitudinal studies would also be equipped to examine fluctuations in both marital quality and anxiety across time. Thus, researchers would be able to more effectively examine external stressors and situations that may undermine mental health and/or the marital relationship (e.g., Bradbury & Karney, 2004).

The current study was also limited by the scope of previous marital factors that have been considered in the research. Although most the literature on marital quality utilizes indicators that assess marital behavior, marital adjustment, marital distress, and marital satisfaction, other factors should also be examined. For example, other marital factors, such as love, admiration, resentment, and perceptions of ineffective marital problem-solving have been examined in the broad marital literature (Fincham and Beach, 2010a; Helms, 2013). Notably, no known studies to date have investigated linkages between these additional indicators of marital quality and anxiety. Nonetheless, future research investigating linkages between marital quality and anxiety will benefit from expanding the conceptualization of marital quality to include these additional marital factors. For example, Claxton and Perry-Jenkins (2008) investigated how leisure activities predicted marital love across the transition to parenting. Because couples who experience anxiety may reduce their participation in shared leisure activities, the Claxton and Perry-Jenkins (2008) article provides a conceptual argument for investigating these processes related to leisure and marital love in the context of anxiety in future research.

Finally, the current study was unable to examine how divorce proneness, an underlying concept related to marital quality, relates to anxiety. The process of considering and/or taking steps toward divorce (i.e., divorce proneness) is likely a time that is rife with anxiety. Although previous research has demonstrated how low marital quality and experiences of marital instability may associate with higher anxiety, little research has investigated how divorce proneness may relate to anxiety across time. Wade and Pevalin (2004) found that general mental health may worsen up to two years prior to divorce. Nonetheless, Wade and Pevalin (2004) did not consider anxiety specifically, or how specific factors related to divorce proneness (e.g., considering divorce, seeking out advice or legal support, etc.) may relate to spouses' anxiety. Future research should investigate how divorce proneness, or the ongoing process leading to marital instability, may relate to anxiety.

Conclusion

This was the first known meta-analytic study to examine the association between marital quality and anxiety and marital instability and anxiety. Results demonstrate that a significant correlation between marital quality and anxiety exists, such that higher marital quality is associated with lower anxiety. Specifically, all underlying marital quality factors, including positive and negative marital behaviors, marital adjustment, marital distress, and marital satisfaction, were significantly correlated with anxiety. Similarly, an association between marital instability and anxiety was found, such that experiences of marital instability were associated with higher anxiety. Overall, the current study provides a statistical synthesis of previous research that has investigated these linkages.

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These findings, therefore, are more comprehensive than findings reported in individual studies. Furthermore, these meta-analytic findings shed light on variability and discrepancies in previous research (e.g., related to differences in these associations based on gender). The current study provides a comprehensive picture of the nature of the associations between marital quality and anxiety and marital instability and anxiety, which may be used to inform future research, improve therapeutic experiences for individual spouses and couples, and educate practitioners, policymakers, and couples.

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APPENDIX A

TABLES

Table 4.1

Associations Between Marital Quality and Anxiety by Beta Estimation Procedures (BEP)

Marital Factor	With BEP	Without BEP
	k; r [95% CI]	*k; r* [95% CI]
Overall Marital Quality	252; -0.217 [-0.368, -0.054]**	151; -0.228 [-0.278, -0.177]***
Marital Quality Indicators		
Positive Behaviors	21; -0.196 [-0.343, -0.040]*	10; -0.250 [-0.393, -0.096]**
Negative Behaviors	39; 0.227 [0.114, 0.334]***	29; 0.283 [0.205, 0.357]***
Adjustment	38; -0.253 [-0.355, -0.144]***	26; -0.307 [-0.432, -0.171]***
Distress	40; 0.267 [-0.1859, 0.628]	28; 0.134 [0.060, 0.206]***
Satisfaction	100; -0.181 [-0.261, -0.098]***	52; -0.172 [-0.241, -0.100]***

k = number of effect sizes, *r* = correlation coefficient
* = significant at *p* < 0.05, ** = significant at *p* < 0.01, *** = significant at *p* < 0.001

Table 4.1. Meta-analytic results for the associations between specific marital quality factors and anxiety by beta estimation procedures (BEP). The analyses the used BEP followed recommendations by Peterson & Brown (2005), whereas the analyses that did not use BEP followed recommendations by Roth et al. (2018) to rely solely on previously reported correlation coefficients.

Table 4.2

Associations Between Marital Quality or Instability and Anxiety by Study Design

Marital Factor	Cross-Sectional	Longitudinal
	k; r [95% CI]	*k; r* [95% CI]
Overall Marital Quality	91; -0.234 [-0.293, -0.173]***	60; -0.209 [-0.260, -0.158]***
Marital Quality Indicators		
Positive Behaviors	8; -0.275 [-0.449, -0.082]**	Not enough data (*n* = 1)
Negative Behaviors	13; 0.320 [0.205, 0.427]***	16; 0.233 [0.16, 0.353]***
Adjustment	26; -0.307 [-0.432, -0.171]***	No studies (*n* = 0)
Distress	9; 0.131 [0.038, 0.222]**	19; 0.123 [0.042, 0.203]**
Satisfaction	32; -0.180 [-0.257, -0.100]***	20; -0.155 [-0.283, -0.021]*
Instability	21; 0.166 [0.062, 0.169]***	18; 0.032 [-0.023, 0.087]

* = significant at $p < 0.05$, ** = significant at $p < 0.01$, *** = significant at $p < 0.001$

Table 4.3

Associations Between Marital Quality and Anxiety by Gender

Marital Factor	Wives' Anxiety	Husbands' Anxiety
	k; r [95% CI]	*k; r* [95% CI]
Wives' Overall Marital Quality	43; -0.173 [-0.234, -0.110]***	21; -0.224 [-0.337, -0.105]***
Husbands' Overall Marital Quality	31; -0.151 [-0.233, -0.066]***	48; -0.239 [-0.311, -0.105]***
Wives' Positive Behaviors	5; -0.141 [-0.269, -0.008]*	No studies (*n* = 0)
Husbands' Positive Behaviors	No studies (*n* = 0)	3; -0.203 [-0.502, 0.138]
Wives' Negative Behaviors	8; 0.257 [0.092, 0.409]**	5; 0.212 [0.140, 0.282]***
Husbands' Negative Behaviors	5; 0.113 [0.039, 0.186]**	8; 0.273 [0.223, 0.322]***
Wives' Adjustment	11; -0.223 [-0.343, -0.096]**	4; -0.279 [-0.482, -0.047]*
Husbands' Adjustment	Not enough data (*n* = 1)	11; -0.366 [-0.500, -0.214]***
Wives' Distress	7; 0.146 [0.064, 0.227]**	6; 0.090 [-0.010, 0.188]
Husbands' Distress	7; 0.156 [0.077, 0.234]***	8; 0.146 [0.062, 0.229]**
Wives' Satisfaction	7; -0.287 [-0.495, -0.048]*	8; -0.049 [-0.183, 0.087]
Husbands' Satisfaction	17; -0.160 [-0.255, -0.062]**	17 ; -0.146 [-0.230, -0.061]**

* = significant at *p* < 0.05, ** = significant at *p* < 0.01, *** = significant at *p* < 0.001

Table 4.4

Assessment of Potential Publication Biases

| Marital Factor | *n (k)* | Trim and Fill | Classic |
		Imputed Studies	Fail-Safe N
Overall Marital Quality	26 (151)	10	1690
Marital Quality Indicators			
Positive Behaviors	5 (10)	0	65
Negative Behaviors	6 (29)	0	169
Adjustment	7 (26)	2	212
Distress	5 (28)	0	9 ♦
Satisfaction	8 (52)	2	141
Marital Instability	10 (39)	3	70

Table 4.4. Duval and Tweedie's Trim and Fill (Random Effects) and Rosenthal's Classic Fail-Safe N tests for publication bias in the associations between marital quality factors and anxiety and marital instability and anxiety.
♦ = Indicates marital factors were not robust against potential publication biases.

FIGURES

Figure 1.1 Conceptual Model

Moderators

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            ┌─────────┐                              ┌──────────┐
           (  Anxiety  ) ────────────────────────▶ (  Marital  )
           (           ) ◀──────────────────────── (  Quality  )
            └─────────┘                              └──────────┘
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Moderators

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            ┌─────────┐                              ┌───────────┐
           (  Anxiety  ) ────────────────────────▶ (   Marital   )
           (           ) ◀──────────────────────── ( Instability )
            └─────────┘                              └───────────┘
```
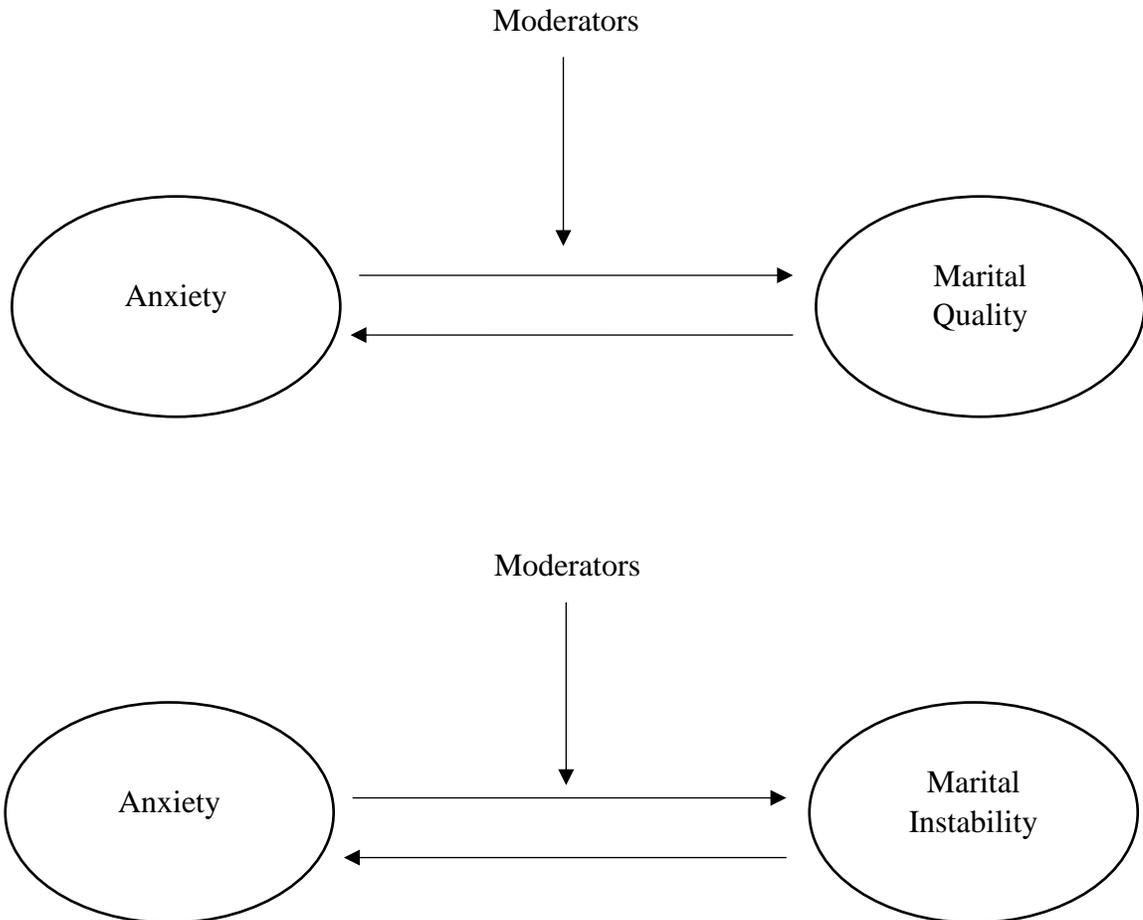
Conceptual models demonstrating the hypothesized associations between marital quality and anxiety and marital instability and anxiety.

Figure 2.1 Vulnerability-Stress-Adaptation Model
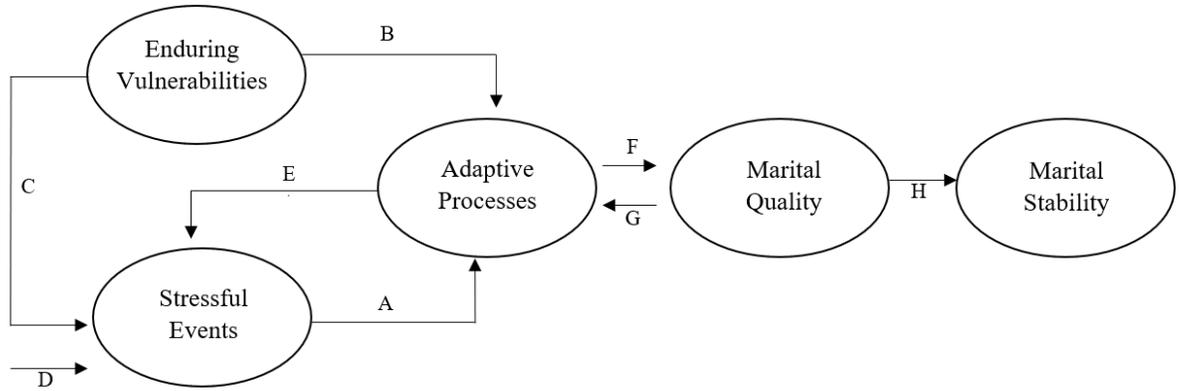
Vulnerability-Stress-Adaptation (VSA) Model (see Karney and Bradbury, 1995, p. 23 for original format).

Figure 2.2 Marital Discord Model of Depression
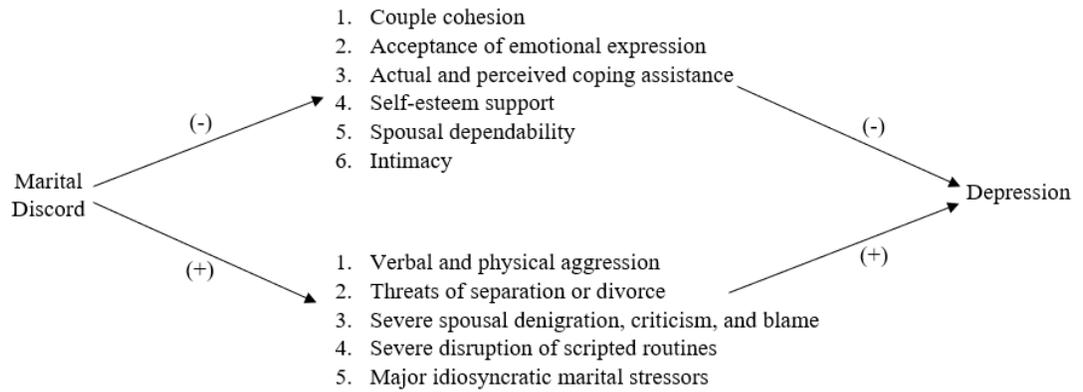
Marital Discord Model of Depression (see Beach, Sandeen, & O'Leary, 1990, p. 54 for original format)

Study-Level Coding Form

CODED BY_____		STUDY ID _ _ _-_ _
DOUBLE CHECKED BY_____		DATE _ _/_ _/_ _

In Text Reference:			Page #
STUDYID		Study Identification Number	

PUBTYPE		Type of Publication
		     1 Journal Article
		     2 Book Chapter
		     3 Thesis/Dissertation
		     4 Other	

PUBYEAR		Publication Year	
SAMPN		Sample Size (total) *Note total number of couples if applicable_____	
SAMPGEN		Sample Size- Gender (total) Male_____ Female_____ Other_____	
DATA		Provide name of data set (if known) or give a brief description of data set.	
DATALOC		Where were the data collected?	
DYAD		Dyadic data? (0 No, 1 Yes)	
MEANAGE		Wives: Mean Age _____ SD _____ Husbands: Mean Age _____ SD _____ Total Sample: Mean Age _____ SD_____	
RACEW		N for each racial/ethnic group of **wives**? Note: if individual sample sizes are not given, indicate the predominant race of the sample (e.g., >60% White) 1 White/European American_____ 2 Black/African American_____ 3 Latina/Hispanic_____ 4 Asian American_____ 5 Native American_____ 6 Multiple_____ 99 Other/Not Reported/Cannot Tell_____	
RACEH		N for each racial/ethnic group of **husbands**?	

		1 White/European American_____ 2 Black/African American_____ 3 Latino/Hispanic_____ 4 Asian American_____ 5 Native American_____ 6 Multiple_____ 99 Other/Not Reported/Cannot Tell_____	
RACETOT		N for each racial/ethnic group of the **full sample**? 1 White/European American_____ 2 Black/African American_____ 3 Latinx/Hispanic_____ 4 Asian American_____ 5 Native American_____ 6 Multiple_____ 99 Other/Not Reported/Cannot Tell_____	
EDUCW		N for each education level of **wives**? Note: if individual sample sizes are not given, indicate the predominant education of the sample (e.g., >60% Bachelor's Degree) 1 High School or Less_____ 2 Some College_____ 3 Bachelor's Degree_____ 4 Master's Degree or Higher_____ 5 mixed group, no group >60% 99 Cannot tell Mean years of education_____ SD _____	
EDUCH		N for each education level of **husbands**? 1 High School or Less_____ 2 Some College_____ 3 Bachelor's Degree_____ 4 Master's Degree or Higher_____ 5 mixed group, no group >60% 99 Cannot tell Mean years of education_____ SD _____	
EDUCTOT		N for each education level of **the total sample**? 1 High School or Less_____ 2 Some College_____ 3 Bachelor's Degree_____ 4 Master's Degree or Higher_____ 5 mixed group, no group >60% 99 Cannot tell Mean years of education_____ SD _____	
EMPW		Percentage__ or N=__ of **wives** employed? Part time _____ Full Time_____ Unemployed____	

EMPH		Percentage__ or N=__ of **husbands** employed? Part time _____ Full Time_____ Unemployed____	
EMPTOT		Percentage__ or N=__ of **total sample** employed? Part time _____ Full Time_____ Unemployed____	
FAMSES1		Predominant Family Socioeconomic Status 1 >60% poverty or low-income 2 >60% working class or higher 3 Mixed group 99 Cannot tell	
FAMSES2		Mean family gross household income for the sample? Mean _____ Range_____ SD _____	

FAMSTR		Family Structure:
		      1 Married
		      2 Cohabit
		      3 Remarried / stepfamily
		      4 Mixed Group
		      5 Widowed
		      6 Divorced
		 99 Cannot tell	

MARLEN		Length of Marriage: Mean _____ SD_____ Range_____ Reported in months__ or years __	
MARTYW		Predominant Type of Marriage- **Wives:** 1 >60% First marriage 2 >60% Second marriage 3 >60% Third marriage (or more) 4 Mixed Group 99 Cannot tell Number of marriages: Mean_____ SD_____	
MARTYH		Predominant Type of Marriage- **Husbands:** 1 >60% First marriage 2 >60% Second marriage 3 >60% Third marriage (or more) 4 Mixed Group 99 Cannot tell	

		Number of marriages: Mean_____ SD_____	
		Predominant Type of Marriage- **Total Sample:** 1 >60% First marriage 2 >60% Second marriage 3 >60% Third marriage (or more) 4 Mixed Group 99 Cannot tell Number of marriages: Mean_____ SD_____	
CHILD		Do the couples in the sample have children? 0 No 1 Yes 2 Mixed Group 99 Cannot Tell	
CHILDNUM		Number of children in the family (99 if unknown) Mean_____ SD_____	
CHILDAGE		Mean age of children in family 1 Under 5 2 5 - 10 3 11 - 18 4 18 – 25 5 Adult children 99 Cannot Tell Mean_____ SD_____	
SAMPOP		Sample Population 1 Community 2 Clinical 3 Other _____ 99 Cannot tell	
SAMPTY		Sample Type 1 Non-random 2 Probability 3 Other 99 Cannot tell	
SAMPD		Sample Design 1 Cross-sectional 2 Longitudinal 3 Experimental 4 Cross-sectional and longitudinal	

Effect Size Level Coding Form (may need multiple for each study)

CODED BY_____   EFFECT ID _ _ _-_ _

DOUBLE CHECKED BY_____   DATE _ _/_ _/_ _

EFECTID		Effect Identification Number (Study ID-Effect ID; ex: 100-01, 100-02, 100-03)	Page #
EFFDES		Provide a short description of the effect	

EFD		Effect Design
		    1 Cross sectional
		    2 Longitudinal
		    3 Experimental	

IV		Which was the IV? 1 Marital factor 2 Anxiety factor	
DV		Which was the DV? 1 Marital factor 2 Anxiety factor	

MARFAC		Marital Outcome / Factor (please list specific factor on designated line)
		    1 Behavior (positive) _____
		    2 Behavior (negative) _____
		    3 Behavior (general) _____
		    4 Satisfaction (positive)
		    5 Dissatisfaction (negative)
		    6 Quality-Other (positive) _____
		    7 Quality- Other (negative) _____
		    8 Stability (positive)
		    9 Instability (negative)
		    10 Adjustment
		    11 Other_____	

MARMETH		Marital Assessment Method
		    1 Questionnaire
		    2 Observation
		    3 Interview
		    4 Composite	

MARGEN		Marital Gender
		    1 Husband report only
		    2 Wife report only
		    3 Both husband and wife report (dyadic)
		    4 Observer report only
		    5 Spouse report only (one spouse per marriage, but both husbands and wives in study)
		    6 Composite
		    99 Cannot tell	

MARMEAS		Marital Measure(s)—Indicate all that apply.
		        1 Conflict-tactics scale
		        2 Dyadic Adjustment Scale (DAS)
		        3 Marital Satisfaction Inventory, Rev. (MSI-R)
		        4 Marital Adjustment Test
		        5 Kansas Marital Satisfaction Scale
		        6 Quality of Marriage Index
		        7 Marital Comparison Level Inventory
		        8 Other established
		        scale_____
		        9 Developed for the study	

ANXFAC		Anxiety Factor (please list specific factor on designated line)
		
		  1 Anxiety categorical _____
		  2 Anxiety continuous _____	

ANXMEAS		Mental Health Measures used:
		        1 Beck Anxiety Inventory (BAI)
		        2 Rosenberg Self-Esteem Scale
		        3 Trait Anxiety Scale
		  4 Other established scale_____
		        5 Developed for the study
		  6 Clinical Interview for Diagnosis (following
		            DSM criteria)	

ANXGEN		Anxiety Gender
		        1 Men
		        2 Women
		        3 Both men and women considered in effect	

ANXMETH		Mental Health Assessment Method
		        1 Questionnaire
		        2 Observation
		        3 Interview
		        4 Diagnosis (dx) report
		        5 Composite	

DXCONF		Mental Health Diagnosed?
		  1 Diagnosed in study
		  2 Professional dx self-reported
		  3 Professional dx confirmed
		  4 No dx used
		  99 Cannot tell	

MST		Marital outcome variable structure
		        1 Latent
		        2 Manifest	

MHST		Mental health factor variable structure
		        1 Latent
		        2 Manifest	

TSTYP		Test Statistic for Effect Size
		      1 Means and standard deviations
		      2 Pearson Correlation Coefficient
		      3 Standardized Beta Coefficient
		      4 Unstandardized Beta Coefficient
		      5 Chi square χ^2
		      6 *F* value (numerator *df* =1)
		      7 *T* value (*df* =1)
		      8 Δr^2
		      9 Partial correlation
		      10 Odds Ratios (OR)	

EFCON		Does the effect include control(s)?
		      0 No
		      1 Yes	

TSVAL		Value of Test Statistic that will be used for the effect size	
SEEF		Standard error of the test statistic	
PLEVEL		*p*-level (99 if unknown)	

SIGNIF		Was the effect significant?
		      0 No
		      1 Yes	

EFSZ	*leave blank*	Effect Size (will be adjusted to *r;* betas will be adjusted using Peterson & Brown (2005) formula)	
SSN		Subsample Size (99 unknown)	
MOMEAN		Marital Outcome Mean (99 unknown)	
MOSD		Marital Outcome Standard Deviation (99 unknown)	
MHMEAN		Mental Health Factor Mean (99 unknown)	
MH SD		Mental Health Factor Standard Deviation (99 unknown)	

NPAR		Is the effect based on 100 or more participants? 　　　1Yes 　　　0 No
SAMPS		Is the sample selected using random or stratified random procedures? 　　　1 Yes 　　　0 No
DESGN		Was an experimental or longitudinal design used? 　　　1 Yes 　　　0 No
MMETH		Were the IV or DV measured using multiple methods? 　　　1 Yes 　　　0 No
IVMINF		Was the IV measured using multiple informants? 　　　1 Yes 　　　0 No
DVMINF		Was the DV measured using multiple informants? 　　　1 Yes 　　　0 No
SEMEF		Is the effect based on SEM? 　　　1 Yes 　　　0 No
COREF		Is the effect based on partial correlation or multiple regression? 　　　1 Yes 　　　0 No 　　　9 N/A
CONTROLS		Did the effect control for (check all that apply; list where applicable): 　　　Yes =1, No = 0 Depression _____ Substance Abuse _____ Demographics _____ Other marital factors _____ Other anxiety factors _____ Other important control variables (list) _____
TXSERVICES		Were the participants included in the effect receiving treatment for anxiety? Yes =1_____ No=0 _____ Were the participants included in the effect receiving treatment for marital distress? Yes =1_____ No=0 _____