2008-02-27

Does Marriage and Relationship Education Improve Couples' Communication? A Meta-Analytic Study

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DOES MARRIAGE AND RELATIONSHIP EDUCATION IMPROVE COUPLES' COMMUNICATION? A META-ANALYTIC STUDY

by

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A thesis submitted to the faculty of

Brigham Young University

in partial fulfillment of the requirements for the degree of

Master of Science

Department of Marriage, Family, and Human Development

Brigham Young University

April 2008

BRIGHAM YOUNG UNIVERSITY

GRADUATE COMMITTEE APPROVAL

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As chair of the candidate's graduate committee, I have read the thesis of Victoria L. Blanchard in its final form and have found that (1) its format, citations and bibliographical style are consistent and acceptable and fulfill university and department requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

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ABSTRACT

DOES MARRIAGE AND RELATIONSHIP EDUCATION IMPROVE COUPLES' COMMUNICATION? A META-ANALYTIC STUDY

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Using the results of 65 reports, this study examined the effect of marriage and relationship education (MRE) on couples' communication, and accounted for various moderators of this effect, including method of assessment and unit of analysis. This study is part of a comprehensive meta-analysis of MRE evaluation research conducted since 1975 (k = 124 codable reports). Overall, MRE produced modest but reliable effects on couples' communication. These effects were maintained at follow-up assessments and were not affected significantly by publication bias. No differences in effect were found for gender. Observational assessments did produce larger effects than self-report assessments. MRE produced the largest effect on positive conflict resolution outcomes. These results have important implications for research, intervention, and policy.

ACKNOWLEDGMENTS

I express my deep gratitude to the faculty that have contributed to my efforts in completing this thesis. I specifically thank the members of my committee, Scott A. Baldwin, Dean M. Busby, and Jason, S. Carroll for their review of my work and the valuable feedback they provided. I also thank the Family Studies Center at Brigham Young University for supporting this meta-analysis and Joseph A. Olsen for the statistical guidance he provided.

I particularly thank my chair, Alan J. Hawkins, for the opportunity to work on this project. Learning meta-analysis has greatly enriched my graduate study. I also thank him for his patience with me and his true mentoring. As I continue my graduate studies and professional endeavors, I hope to mentor others in the way he has mentored me.

Last of all, I thank my husband, Ryan, for the physical and emotional support he has provided me. Who knows where I'd be if I hadn't had someone to snuggle with after a long day of entering data in CMA . . .

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Research has consistently shown healthy marriage to be an important predictor of physical, emotional, and financial well-being for individuals, families, and children (Institute for American Values, 2005). For instance, couples with high-functioning marriages experience better health than those with discordant marriages (Kiecolt-Glaser & Newton, 2001). Because marital quality is so influential, widespread efforts to help strengthen marriage are emerging. In fact, the United States government has allocated $500 million from 2006–2011 toward educational efforts and initiatives to strengthen marriage. Marriage and relationship education (MRE) is a central tool in this policy initiative. MRE has become a widely used tool to help couples create and maintain healthy marriages, and research has shown many MRE programs to have a positive effect on relationship quality (e.g., Hahlweg, Markman, Thurmaier, Engl, & Eckert, 1998, Stanley et al., 2005).

Since 1975, more than 100 published and unpublished studies have been conducted to assess the effectiveness of MRE for improving couples' communication, an important aspect of relationship quality (Gottman & Silver, 1999). However, given the limitations of each study, a simple review of the results of these studies would not allow for generalizations about the overall effectiveness of MRE. Meta-analysis provides rigorous methods for synthesizing the results of these individual studies in order to examine the general magnitude of the effect of MRE on couples' communication. The effect size statistic used in meta-analysis allows study findings to be aggregated across studies (Lipsey & Wilson, 2001). This overall effect size allows researchers to make more generalizable claims about the effectiveness of MRE, which is useful for researchers, practitioners, and policy makers. Furthermore, by coding aspects of study

methodology and intervention characteristics, meta-analysis allows for the statistical analysis of the moderating effect of various factors on the effectiveness of MRE.

Although recent meta-analyses have investigated the effects of MRE on communication outcomes (e.g., Butler & Wampler, 1999; Carroll & Doherty, 2003; Hight, 2000; Reardon-Anderson, Stagner, Macomber, & Murray, 2005), the current meta-analysis is warranted due to significant limitations of these studies. For example, Butler and Wampler (1999) analyzed only research conducted on the Couples Communication program (Miller, Nunnally, & Wackman, 1976), and Carroll and Doherty (2003) examined only premarital education programs. Another recent meta-analysis (Reardon-Anderson et al., 2005) analyzed only true experimental-design studies, excluding a great deal of mainstream MRE research. While it is still necessary to distinguish between different designs in meta-analysis, comparing the results of experimental and quasi-experimental research is of particular interest in intervention research, as many of the conditions that are required for experimental research are unrepresentative of the conditions that occur in "real-life" MRE (Lipsey & Wilson, 2001). The current meta-analysis compares the results of both experimental and quasi-experimental studies. Furthermore, only the Hight (2000) meta-analysis made a significant effort to include unpublished studies. This is a concern because relying on published studies can upwardly bias the true effect size (Begg, 1994). This meta-analysis includes more unpublished studies (mostly dissertations) than published studies.

In addition to concerns about the generalizability of results from previous meta-analyses, the current meta-analysis is also warranted due to significant limitations in the precision of these studies. With the exception of Butler and Wampler (1999) (who only

included research on the Couples Communication program), previous meta-analyses have failed to calculate effect sizes that compare self-report assessments to observational assessments. This comparison is important to learn more about how intervention changes individuals' perceptions versus their actual behavior and to identify if the method of assessment is related to the magnitude of effect shown. There has also been a lack of precision regarding the constructs included in the calculation of effect sizes. Hight (2000) and Carroll and Doherty (2003) averaged effect sizes from communication measures with effect sizes from other constructs, such as relationship quality. Although communication and relationship quality are related (Kelly, Fincham, & Beach, 2003), they are also distinct enough to warrant separate attention.

Furthermore, no previous meta-analyses have attempted to report separate effect sizes for communication subconstructs. Such analyses are called for because recent research has identified different aspects of communication to be beneficial to couples' relationships in different ways. For instance, Gottman, Ryan, Swanson, and Swanson (2005) found that couples who participated in an intervention that targeted improving their friendship (through positive communication) exhibited more positive conflict resolution than couples who participated in an intervention that targeted improving their ability to manage conflict. However, couples exhibited the most positive change in their conflict resolution behavior after participating in an intervention that targeted both their friendship and their conflict management. Because both positive relationship communication and conflict resolution techniques may make unique contributions to couples' relationships, these different types of communication deserve individual attention. Conducting separate analyses of the communication subconstructs taught in

MRE can help gather information on how to better facilitate these different types of communication in couples. This meta-analysis will be the first to conduct such analyses. In addition, the process of synthesizing evaluation research on communication in MRE may contribute to the field's current understanding of couple communication.

The purpose of this study is to provide both generalizable and more precise information regarding the effect of MRE on couples' communication. Including as much published and unpublished research as possible, the current study will report the effect of MRE on couples' communication as measured by self-report and observational methods and by unit of analysis. Using current research and theory on couples' communication, this study will also make distinctions between the various constructs used to assess couple communication. For example, separate effect sizes will be reported for positive communication and conflict resolution outcomes. These distinctions will be justified in a review of the literature on the measurement of couples' communication. The results of this study will provide important implications for future research, intervention, and policy.

REVIEW OF COMMUNICATION ASSESSMENT AND THEORY

MRE includes both skills-based group programs and support groups designed to prevent and remediate marital distress (Larson, 2004). MRE is distinct from therapy because the intent of MRE is to help couples before their problems are overwhelming (Larson, 2004). MRE dates back to the 1960s, when Father Gabriel Calvo began developing and delivering Marriage Encounter (Berger & DeMaria, 1999; Bosco, 1972). By the late-1970s, Marriage Encounter was reaching more than 250,000 couples a year. Numerous other MRE programs were created during this period, including the Association for Couples in Marriage Enrichment (ACME) (Mace & Mace, 1976), the Minnesota Couples Communication Program (Miller et al., 1976), and Relationship Enhancement (Guerney, 1977). Since the emergence of these MRE programs in the 1970s, a small but noteworthy "marriage movement" has emerged in America and elsewhere. Evidence of this growing movement include the creation of hundreds of community initiatives designed to strengthen marriage, an increase in government and private funding for MRE and evaluation, and the growing attendance of the yearly Smart Marriages Conference held since 1995 sponsored by the Coalition for Marriage, Family, and Couples Education (Brotherson & Duncan, 2004; Larson, 2004).

Communication is the primary content in most MRE programs (Heyman, 2001), appropriately so because communication is closely associated with relationship quality (Kelly et al., 2003; Weigle 2003). In fact, some view communication to be the substance of relationships (Dindia & Timmerman, 2003). While communication may simply be the vehicle for expression of distress, some research suggests that poor communication and problem-solving patterns precede marital distress (Markman, 1981; Markman &

Hahlweg, 1993); it appears that marital distress is at least partially caused by poor communication (Noller, 1993). Thus, some promote teaching communication techniques through MRE as a way to prevent the erosion of marital satisfaction (Laurenceau, Stanley, Olmos-Gallo, Baucom, & Markman, 2004). The empirical relationship between communication and relationship quality should be viewed with caution given the fact that many common measures of marital quality (e.g., DAS and MAT) contain items that measure communication (Kelly et al., 2003), and because the relationship between communication and relationship satisfaction can be moderated by gender, distress level, and other factors (Burleson & Denton, 1997). Yet despite these considerations, the conceptual connection between communication and couples' relationships remains.

Although many are willing to agree as to the importance of communication in marital relationships, there is little consensus as to what types of communication are most relevant to couples and how to assess these communication techniques. This means that many different communication behaviors are taught in MRE and assessed in evaluation research. In some cases, these communication behaviors are conceptually quite different (e.g., expression of empathy versus negotiating), so it makes sense to report separate effect sizes for some of these concepts. Such statistical distinctions will also provide more in-depth knowledge as to the effect of MRE on communication outcomes. For instance, do couples experience greater gains in some communication behaviors than others? Relationship communication research and theory will be reviewed in order to justify the framework used to make these distinctions. This section will provide a general overview of various aspects of marital communication constructs and assessments used in MRE evaluation research.

Communication Assessment

Spitzberg (2003) suggests that it is important to attend to who is being assessed and how they are being assessed. Thus, I will provide a general review of these major aspects of assessment including timing of assessment, type of assessment, and unit of analysis. Making distinctions within these aspects of measurement for the purposes of meta-analysis is valuable not only in order to honor significant statistical assumptions, but also because such distinctions will provide answers to more detailed questions about the effect of MRE on communication outcomes.

Timing of Assessment

Some suggest that it may be unrealistic to hope that communication behavior training can have long-term effects, particularly under conditions of relationship distress (Kelly et al., 2003). Most researchers administer assessments immediately following intervention to account for change related to intervention. However, many researchers also conduct follow-up assessments. Earlier meta-analytic studies suggest that communication outcomes deteriorate but still exist at follow-up (Butler & Wampler, 1999; Reardon-Anderson et al., 2005). Distinguishing between post- and follow-up assessments in analyses will allow me to address the question of whether communication training can have longer-term effects.

Self-report versus Observational Assessments

Traditionally, marital communication has been assessed using individuals' reports of their own and, sometimes, their partners' communication behaviors. However, biases and selective attention can influence individuals' perceptions of their communication,

particularly in intervention research, where individuals may be more prone to reporting their knowledge of the techniques taught (Heyman, 2001).

Because of these concerns, many researchers use observational methods of assessing couple interaction. It is assumed that researchers can make a more objective evaluation of couples' communication using pre-established standards outlined by various coding systems. Couples do tend to be less negative in laboratory settings than they are in natural settings, which reduces the variability of negativity available for analysis (Heyman, 2001). However, such observations tend to represent couples' typical behaviors (Kelly et al., 2003), and coders are still able to distinguish between happy and unhappy couples (Heyman, 2001).

Yet, there are some limitations to behavioral coding. For instance, couple interactions are very complex, but coding systems require researchers to restrict their attention to only certain aspects of communication behavior (Kelly et al., 2003). In intervention studies, researchers may only code behaviors that were taught in their intervention, and subjects' demonstration of these behaviors may still reflect their desire try to please the researchers (Heyman, 2001). Also, researchers tend to assume that behaviors are representative of individuals' overall skill levels, and fail to attend to how individuals use communication or interpret their partners' communication based on their motivations (Burleson & Denton, 1997). Furthermore, these coding systems are often based on value judgments of what specific behaviors comprise competent communication (Kelly et al., 2003), which is problematic because of the development needed in marital communication theory (Heyman, 2001). Furthermore, some measures use simple frequency counts of behaviors (Burleson, 2003), either by counting the amount of time in

which a behavior is displayed or units of expression that fit certain categories (Kelly et al., 2003). This approach assumes that "more is better," but "fails to appreciate that not everything said or done by a support provider is equally helpful or effective" (Burleson, 2003, pp. 558–559). Because of the limitations inherent in all methods of assessment, there is value in using multiple methods of assessment (Burleson, 2003). In order to account for the differing limitations and strengths of self-report and observational methods, I conduct separate analyses for both types of assessment.

Unit of Analysis

Depending on the assessment used and the purposes of the study, researchers can assess and analyze communication on an individual or couple level. Some researchers may simply report data for individuals and not account for gender, but many researchers prefer to analyze data for each gender to determine if men and women respond differently to communication interventions. Such attention to gender seems warranted since women tend to rely on and find more satisfaction in talking about relationships than men (Weigle, 2003). Furthermore, there seem to be differences in how men's and women's communication relates to marital satisfaction. Schilling et al. (2003) found that while an increase in men's positive conflict resolution behavior predicted future marital satisfaction as expected, women's increase in positive conflict resolution predicted lower future marital satisfaction. Apparently women's increase in positive conflict resolution was associated with avoidance of conflict, which means that important relationship issues relevant to satisfaction may not have been attended to as needed. Thus, men and women appear to react differently to changes in communication because of MRE.

Researchers can also analyze data using the couple as the unit of analysis. There are two ways that researchers can present couple data. One is to present a total score from an assessment directly assessing aspects of the relationship completed in part by both partners in a relationship. The other is to simply average the partners' individual scores on an assessment.

When evaluating romantic relationships, analyzing couple scores is preferable because it makes allowance for the fact that individuals' assessments of their relationships are nonindependent—their assessments are linked because of the unique relationship that exists between the two of them (Kenny, Kashy, & Cook, 2006). This relationship can be modeled statistically (Kenny et al., 2006), as well as considered conceptually. While it is possible to think of communication in terms of behaviors individuals exhibit, in terms of a committed, romantic relationship, it may be more appropriate to think of communication as a property of the relationship—something that exists because of the interaction of two people. That is, the communication of an individual in a relationship is dependent on and only meaningful in the context of the communication of the other. Thus, the issue of nonindependence suggests that, statistically, analyzing the couple is preferred. However, some ways of analyzing couple data can mask important gender differences (Burleson & Denton, 1997). While it is possible to use higher-order statistical methods to model couple data in such a way that simultaneously accounts for the non-independence of data and the gender of participants, the majority of existing MRE evaluation research fails to use such methods. Furthermore, such methods require the use of more sophisticated meta-analytic techniques. Because the purpose of this meta-analysis is to synthesize as much MRE evaluation research possible,

we included studies that analyze data either by the couple or the individual/by gender. In terms of this meta-analysis, what is important is that an analytical distinction is made between these units of analysis in order to make use of all of the information that is available and to honor the statistical distinctions of the methods used.

In summary, there is great variety in the assessment of communication outcomes in MRE evaluation research. Researchers may administer assessments at various time points in relation to an intervention, thus providing more insight into the duration of effect. Assessments can capture the perceptions of the participants or be based on the ratings of trained observers—methods which are subject to very different assumptions and limitations. Researchers may conduct analyses using individuals as the unit of analysis (to account for gender differences) or couples as the unit of analysis (to account for statistical nonindependence). Capturing the variety of assessment in meta-analysis by making distinctions in effect sizes is a valuable way to provide more detailed answers to important questions about the effectiveness of MRE in relation to couples' communication.

Relationship Communication

Just as there is great variety in the methods used to assess communication, there is also variety in the subconstructs these measures assess. While there is general consensus that competence in communication relates to socially appropriate behavior (Kelly et al., 2003) and efficient and effective communication (Wilson & Sabee, 2003), there is little in the way of formal theory that details the specific behaviors essential to competent social interaction (Spitzberg, 2003). Researchers have struggled to agree on the most important qualities that are necessary for competent couple communication (Wilson &

Sabee, 2003). The list of communication behaviors taught in MRE interventions seems almost endless, including behaviors such as assertiveness, responsiveness, self-disclosure, listening, and clarity (Sptizberg, 2003). Some might reply that despite the lack of an explicit overarching theory of relationship communication, there are clear similarities in behaviors being taught and assessed in MRE. While there are certainly microtheories "laced" throughout research on communication in marriage and family (Stephen, 2001), these microtheories are not especially helpful because they do not create connections between the many different constructs represented in the literature. In a review of communication constructs, Spitzberg (1989) found that researchers generally fail to define constructs with the same label consistently and conceptualize relationships among constructs (Wilson & Sabee, 2003). Thus, at this point it becomes quite the challenge to consider synthesizing the various communication measures available into meaningful categories.

Fortunately, some "stubborn facts" have emerged from the large body of communication scholarship (Heyman, 2001) that can help guide the process of making a few general conceptual distinctions for the purpose of this meta-analysis. First, communication can be used to reliably differentiate between distressed and non-distressed couples (Kelly et al., 2003). While some behaviors may be contextually dependent, others can be clearly classified as either helpful or harmful to a relationship. For example, criticism has been found to be very harmful to relationships (Gottman & Silver, 1999). Just as research on the risk and protective factors for couple dysfunction should guide practitioners' decisions about the content of intervention (Heyman, 2001), such research can also be used as criteria for making distinctions between the many

communication behaviors represented in the literature. While these criteria do not provide enough information to establish connections among all the communication subconstructs that exist, they can be used to create general categories of subconstructs, which is sufficient to create more meaningful effect sizes in this meta-analysis. That is, behaviors associated with relationship distress can be considered "negative," while those associated with relationship satisfaction can be considered "positive." In addition, it should be noted that most of the research that exists on couples' communication focuses on couples' communication in the context of conflict resolution (Heyman, 2001). However, researchers have begun to pay more attention to communication outside of conflict resolution and have identified some "positive" communication behaviors. While there is some overlap between the behaviors relevant to function and dysfunction in each of these situations, there are some fundamental distinctions between them, which I now review.

Conflict Resolution

Conflict is a natural part of relationships and can result from behaviors, norms, personality, incompatible goals, inaccurate attributions, or dialectical tension (Canary, 2003). In fact, Canary (2003) suggests that a lack of conflict could only occur in "one of two extremely unlikely conditions: (a) when people are entirely constrained from thinking, feeling, and acting, or (b) when they are talking to clones of themselves" (p. 515). In fact, some research suggests that an absence of conflict can be damaging to a relationship over time (Schilling, Baucom, Burnett, Allen, & Ragland, 2003). Thus, conflict is not necessarily negative, although there are types of conflict that can be harmful to relationships (Wilson & Sabee, 2003).

As mentioned before, it can be difficult to differentiate between functional and dysfunctional conflict behaviors because their meaning is tied to contextual constraints (such as individuals' motivations) that may not be readily understood (Canary, 2003). Thus, while the behaviors presented are generally accepted as being either helpful or harmful, it may be possible that in certain circumstances, they could have different effects. For example, while openness generally facilitates conflict resolution and relationship repair, it can be negatively related to relational satisfaction, perhaps because it is not as effective when used by those who are not proficient in performing the behavior (Dindia & Timmerman, 2003).

Negative Conflict Resolution

Because dysfunctional conflict resolution has received the most attention in research, a number of "stubborn facts" regarding what should be avoided in conflict exist (Heyman, 2001). I review some that have received the most empirical support below.

Harsh start-up. Research consistently shows "harsh startups" (Gottman & Silver, 1999) in conflict to be associated with relationship distress. A harsh startup simply refers to beginning a conversation in any way that conveys highly negative emotion. This behavior appears to be a highly dysfunctional way of approaching conflict, so much so that 96% of conversations that begin harshly are not resolved positively (Gottman & Silver, 1999).

Escalation behaviors. Dysfunctional conflict resolution tends to be accompanied by more negative emotion than functional conflict, and this negative emotion is typically reciprocated between partners (Canary, 2003; Heyman, 2001; Kelly et al., 2003). This negativity is particularly problematic when partners' escalate, or heighten the negativity

being displayed by the other (Gottman & Silver, 1999), and this may occur because distressed couples are less likely to edit their behavior (Heyman, 2001). For instance, partners may make "you-statements" in which they blame their partner and elicit feelings of animosity and antagonism (Canary, 2003). This type of criticism is highly associated with distress and can be the gateway to other negative communication behaviors such as contempt and defensiveness (Gottman & Silver, 1999).

Withdrawal. This escalation of negativity in conflict resolution can eventually "flood" individuals to the point that they are overwhelmed and begin to stonewall, or withdraw from conflict, which is also associated with relationship distress (Gottman, 1993).

Positive Conflict Resolution

Heyman (2001) suggests that more is known about what to do to avoid distress in conflict resolution than to promote satisfaction in conflict. However, research has found a number of techniques that facilitate conflict resolution. I review a few of these below.

Repair attempts. When a partner exhibits negative communication behavior, it is helpful for the other partner to use a repair attempt (Gottman & Silver, 1999), which is "any statement or action . . . that prevents negativity from escalating out of control" (p. 22). Behaviors that can be used to "repair" poor communication include humor and displays of affection. Displays of affection and positive emotion predict stability and satisfaction (Cartensen, Gottman & Levenson, 1995; Gottman, Coan, Swanson, & Carrerre, 1998).

Attention to messages. Couples can also experience less distress from conflict by simply attending to the information in their partners' messages rather than focusing on it

as an attack and being aware of their personal goals and the goals of their partners (Canary, 2003). Paraphrasing the speakers' message and conveying support and positive regard for one's partner during conflict can also facilitate positive relationship outcomes (Canary, 2003).

Problem-solving. Because distressed couples tend to display non-productive problem solving behaviors (Kelly et al., 2003), some researchers have promoted teaching couples specific problem-solving techniques (e.g., Ridley & Nelson, 1984). These techniques often involve describing the problem as a couple, discussing options, setting goals, and negotiating (e.g., Ridley & Nelson, 1984).

Acceptance of partner. Interestingly, less than one-third of couples' marital problems are "solvable" in nature (Gottman & Silver, 1999), and in cases where problems are not solvable, it helps partners to learn how to communicate acceptance of partner even though they are not happy with the situation (Kelly, Fincham, & Beach, 2003; Gottman & Silver, 1999).

While these and other behaviors can help couples resolve conflict satisfactorily, it should be noted that there are still some inconsistencies in the literature regarding positive conflict resolution techniques. For instance, the reciprocation of agreement and problem solving, which are typically described as positive components of conflict resolution, are not consistently related to relational satisfaction (Canary, 2003). Similarly, the use of "I-statements," a component of the popular active listening model (see Stanley, Markman & Blumberg, 1997), has been promoted because such statements tend to elicit compassion and conciliation rather than animosity and antagonism (Canary, 2003). However, there is debate about whether to teach these techniques because couples in

high-functioning relationships do not naturally communicate in this way (Gottman, Coan, Carrérre, & Swanson, 1998). Thus, many popular conflict resolution techniques have received varying levels of empirical support.

Positive Communication

Because most research has focused on how dysfunctional couples communicate during conflict, much less is known about how happy couples behave when they are not in conflict and are using communication to facilitate intimacy or emotional support (Heyman, 2001).

Self-Disclosure

Self-disclosure is one of the most popular communication behaviors taught and assessed in MRE, probably because of the association that open and honest communication has with a number of positive relationship characteristics, including commitment (Weigle, 2003). Gottman and Silver (1999) report that conversation that increases partners' knowledge of each other's daily life and inner selves, which can be achieved through self-disclosure, can be conducive to quality marital relationships by increasing feelings of intimacy. For instance, relationships can be strengthened when partners stay up to date on each others' life dreams, religious beliefs, current stresses, preferences, hopes, and aspirations (Gottman & Silver, 1999).

Conversations involving self-disclosure do not always have to be long and drawn-out or even involve reciprocal self-disclosure to increase intimacy (Gottman & Driver, 2005). Even small ways of "turning toward" each other, or showing responsiveness and establishing connection, such as asking one's partner how his or her day went or having casual discussions during lunch, can make deposits into partners' "emotional bank

accounts," which can buffer couples from negativity in their relationships (Gottman & Driver, 2005). In fact, couples that turn toward each other in non-conflict situations exhibit more positive communication behaviors when they are in conflict (Driver & Gottman, 2004). For instance, the more enthusiastic couples are to each other in daily moments, the more affectionate they are in conflict, which can help deescalate negativity in conflict (Driver & Gottman, 2004).

Emotional Support

Research has also established emotional support as an important aspect of positive communication in a healthy relationship. Emotional support is one of the most highly valued components of romantic relationships (Burleson, 2003), and it predicts changes in relationship satisfaction just as strongly as conflict resolution (Pasch & Bradbury, 1998). Many communication behaviors are related to emotional support; it includes any communication that "provides an uplift, conveys affection, enhances a sense of inclusion, or promotes coping," and may consist of "helping distressed others work through their upset by listening to, empathizing with, legitimizing, and actively exploring their feelings" (Burleson, 2003, p. 552). Gottman and Silver (1999) suggest that taking turns listening to one another, showing genuine interest, communicating understanding, siding with your spouse, having an "us against them" attitude, expressing affection, and validating emotion are all important to helping one's partner decrease stress. Expressing affection can also represent emotional support (Burleson, 2003), and Gottman and Silver (1999) suggest that couples can do so by expressing appreciation for one another and reminiscing about their relationship history.

The Relationship between Positive and Negative Communication

It should be noted that it is not just the overall levels of functional and dysfunctional conflict resolution behaviors that is important. It is important to attend to the relationship between positive and negative communication behaviors. Some research shows that negative behaviors seem to be more powerful than positive behaviors (Markman, 1993). Thus, the ratio of positive and negative behaviors can be "more critical than the sheer frequency" of these behaviors (Canary, 2003, p. 535). In fact, Gottman (1994) found that in stable marriages, the ratio of positive behaviors to negative behaviors during conflict was 5 to 1 or greater for stable couples and .8 to 1 for unstable couples. Therefore, the goal of intervention should not be just to decrease negative behaviors, but also to increase positive behaviors. Gottman, Ryan, Swanson, and Swanson (2005) found that couples who participated in an intervention that targeted improving both their friendship (through positive communication) and their conflict management experienced more positive conflict resolution than those who participated in interventions targeting just one of those goals. This finding also highlights the need to consider strengthening communication behavior outside of conflict as a way to protect couples from distress.

Research Questions

The specific research questions addressed in this study are as follows: (1) What does the body of MRE evaluation research look like? What factors (such as study design, program dosage, etc.) define this body of research? (2) Does MRE have a positive effect on individuals' and couples' abilities to improve their communication? (3) Do experimental and quasi-experimental studies yield different results? (4) Are positive intervention effects maintained over time? (5) Are effect sizes inflated by publication

bias? (6) Are the effects different for self-report and observed measures of couples' communication? (7) Are the effects different for men, women, and couples? (8) What are the effects of MRE on specific subconstructs such as positive communication and positive and negative conflict resolution? (9) What factors relevant to intervention (e.g., length of program, program content) and sampling (e.g., age of participants) moderate effect sizes?

METHODS

Search Procedure

The data analyzed in this meta-analysis consist of 65 reports of research evaluating the effectiveness of MRE in improving individuals' and couples' communication. This study is part of a comprehensive meta-analysis of MRE research conducted since 1975, when serious work in this field began to emerge (k = 124 codable reports). Because a study can be defined as "a set of data collected under a single research plan from a designated sample of respondents" (Lipsey & Wilson, 2001, p. 76), a number of these reports included data on multiple studies. For instance, a report that tests two slightly different treatments and one control group produces two studies (e.g., Witkin, Edleson, Rose, & Hall, 1983). Thus, this meta-analysis actually represents the results of 91 studies. Furthermore, most of these 91 studies provide information relating to multiple effect sizes, such as when researchers administered both post and follow-up assessments or used more than one communication assessment. Therefore, 260 effect sizes are available to compute the various effect size statistics to be reported in this meta-analysis.

The search procedure used to identify the reports included in this meta-analysis consisted of several steps. First, we obtained and reviewed a list of 502 published and unpublished studies from the search conducted by Reardon-Anderson et al. (2005) for their meta-analysis of MRE. We supplemented this procedure with searches of the bibliographies from other meta-analyses and literature reviews. Picking up where the Reardon-Anderson et al. (2005) search left off, we also searched the PsychInfo database for more recent work (cutoff years 2004–2006) and Dissertation Abstracts International for unpublished work (1975–2006). Moreover, we made extensive efforts at national

conferences and through email to contact researchers and practitioners to find unpublished reports.

Selection and Inclusion Criteria

Decisions of inclusion and exclusion are crucial to meta-analysis. In contrast to previous meta-analytic studies of MRE, our general strategy was to include all relevant research but code for and analyze important methodological features that could bias or differentiate effect size estimates. Accordingly, we are able to address key issues relevant to MRE research and answer more questions about the effectiveness of MRE than previous meta-analytic studies.

Psychoeducational Intervention

In the current meta-analysis, all included studies assessed the effects of a psychoeducational intervention that attempted to improve marital or couple relationships. Several studies that focused solely on improving sexual functioning and satisfaction were excluded. However, we included studies regardless of the timing of their interventions (e.g., premarital vs. early marital enrichment). The key distinction made in this criterion was that therapeutic interventions were excluded in order to provide a clear picture of the effects of psychoeducational intervention. In addition to being an important conceptual distinction, this is an important methodological consideration because therapeutic interventions generally have stronger effects than psychoeducational interventions (Shadish & Baldwin, 2003).

Doherty (1995) noted that the distinction between therapy and psychoeducation can be fuzzy and argued that a continuum approach should be taken to make distinctions between education and therapy. While there are specific aspects of an intervention that

can clearly distinguish it as therapeutic or educational in nature, such as the management of intense personal distress, which is distinctive of therapy (Doherty 1995), some interventions use a mix of techniques that tend to muddy the water between therapy and education. For the purpose of this meta-analysis, only those interventions that were clearly "an arm's length" from a therapeutic intervention were included. Thus, it was to be clear to the participants that the intervention was educational, and not therapeutic, in nature (Doherty, 1995). An example of how this principle was applied during the selection process was the exclusion of a few studies in which standardized curriculum was delivered entirely in the context of one-on-one sessions between the educator and the participants. Of course, many programs were delivered by instructors who were also trained therapists. This alone, however, did not exclude the study from our analysis.

Reporting of Outcome Data

For inclusion in the current meta-analysis, studies also had to report effects on communication using quantitative methods that could be coded to produce an appropriate effect size. Therefore, a few studies using only qualitative methods of gauging the effectiveness of MRE on communication were excluded. Some quantitative studies did not report the data necessary to straight forwardly calculate an effect size. We succeeded in "rehabilitating" some of these studies by following recommendations outlined in Lipsey and Wilson (2001), including contacting the authors for more information. Unfortunately, success in rehabilitating data using this technique was limited. Another technique we employed a few times when standard deviations for a common outcome measure were not reported in the study was to substitute the average standard deviation of the other studies in the data set for that standardized measure. Still, our success in

rehabilitating data was limited. (Studies that we were unable to code are indicated with "#" in the References section.)

Date of Publication

Rigorous research on MRE picked up momentum in the mid 1970s. Thus, we assumed that including studies published since 1975 would include the evaluation studies relevant to this analysis. A small number of studies published prior to 1975 may have been excluded.

Study Design

Unlike some past meta-analyses (e.g. Reardon-Anderson et al., 2005), both experimental and quasi-experimental evaluation studies were included in this meta-analysis because real-world intervention places constraints on the ability to adhere to the strict requirements of experimental design and because of the significant number of studies containing valuable information that do not meet the requirements of experimental design. Including quasi-experimental research designs allowed a broader array of studies and programs to be included, and likely these programs are more indicative of the majority of MRE as it is practiced in the field currently. (Four experimental studies administered only post-tests rather than administering both pre- and post-tests.)

For the purpose of this study, experimental studies were defined as those that compared an MRE intervention to a randomized no-treatment control group. Quasi-experimental studies were defined as those that compared an MRE intervention to a non-randomized no-treatment control group. A no-treatment control group was defined as a control group that did not receive a treatment that provided intervention comparable to

mainstream MRE intervention in either time intensity or content. Thus, a large number of studies comparing interventions only to a comparison group were coded as one-group/pre-post studies and were not included in the present study. Wait-list control groups were coded as no-treatment control groups as long as appropriate pre-intervention data were included.

For technical and conceptual reasons, analyses will be conducted separately for each design group (see Lipsey & Wilson, 2001). Including quasi-experimental studies allows me to not only address the efficacy of MRE, but also begin to address the effectiveness of MR**E** (Baucom et al., 2003; Shadish & Ragsdale, 1996). The comparison of experimental and quasi-experimental studies will show whether study design decisions biased effect size estimates. However, this investigation is not complete in this study because I did exclude a large number of evaluation studies employing one-group/pre-post designs, or comparing one treatment to another valid treatment (33 reports yielding 52 codable studies). Although many of these studies were well conceptualized and reported results that shed further light on the practice of MRE, these studies deserve greater attention than space allows here.

Publication Status

Both published and unpublished studies were sought for inclusion in this meta-analysis so that the issue of publication bias could be directly addressed. Publication bias is a serious threat to the validity of meta-analytic results. Baldwin and Shadish (2006) found that meta-analyses that ignore unpublished studies overstate the true effect size by an estimated 5–20%. Of the 65 reports analyzed in this study, 25 were published reports and 40 were unpublished reports. The vast majority of unpublished reports were doctoral

dissertations. Of course, it is impossible to determine whether the entire population of unpublished work in this area was identified, but we are confident that we identified a large proportion of it.

Foreign Language Studies

Although we did not conduct a thorough search for studies in non-English sources, our search did identify a handful of reports published in foreign languages (i.e., German, Dutch, and Afrikaans). Translators were hired in order to include these studies in the meta-analysis.

Variable Coding

After deciding to include a particular report in the meta-analysis, the next task was to code it. In meta-analysis, effect sizes can be compared to dependent or outcome variables, and moderators can be compared to independent or predictor variables (Lipsey & Wilson, 2001). A 55-item codebook (see Appendix) was created to systematically code various moderators relevant to the effect of MRE on couples' communication. Many of the items in this codebook were created to reflect the dimensions of MRE identified in the Comprehensive Framework for Marriage Education (Hawkins, Carroll, Doherty, & Willoughby, 2004). For example, to describe the MRE program used in the study, information regarding the content, dosage, setting, and instructional methods was coded. There were also a number of other coding items used to capture valuable information regarding the study (e.g., type of publication), sample characteristics (e.g., distress and ethnicity), and assessment methods (e.g., timing of assessments).

Our coding team for this large number of studies consisted of four individuals: a Ph.D. evaluation researcher, a Ph.D. candidate, an M.S. candidate (author), and a trained

undergraduate student. I (M.S. candidate) was the "anchor" coder for every study. One of the other three coders served as the second coder. After separately coding each study, the second coder and I would compare our answers. When there were discrepancies, we discussed our rationale and sought further clarification from the study text until we reached agreement. In cases where we were unable to come to a consensus, we discussed the differences with the Ph.D. evaluation researcher until a consensus was reached.

Computation of Effect Size

After coding was completed, I entered the data needed to calculate an effect size into Comprehensive Meta Analysis II (Biostat, 2006). I entered data such that I will be able to analyze a number of potentially useful effect sizes based on unit of analysis (couples, gender-unspecified individuals, or males and females separately); method of assessment (self-report or observed methods); timing of assessment (post- or follow-up), the communication subconstruct assessed (positive communication or positive/negative conflict resolution); and the moderator variables (e.g., program length). I also entered data to reflect the appropriate direction of effect. For instance, a decrease in average score on an assessment measuring negative behavior was coded as having a positive effect direction.

Prior to conducting analyses on the effectiveness of MRE on communication, the data was exported to SPSS version 12.0 (SPSS, 2003) to conduct analyses on descriptive aspects of the data. These analyses answered the first research question and provided better understanding of the state of MRE evaluation research regarding communication.

After conducting these descriptive analyses, I used CMA II to compute effect sizes to answer the research questions regarding the effectiveness of MRE concerning

individuals' and couples' ability to improve their communication. The effect size statistic used in this study is the standardized mean group difference. The standardized mean group difference is calculated by subtracting the post mean of group 2 from the post mean of group 1 and dividing the result by the pooled post standard deviation. The effect sizes of each study are then weighted by the inverse variance (squared standard error) to account for sample size and study reliability and averaged to create the overall effect size. Hedges' (1981) correction for small sample size bias was used because of the high proportion of studies with small sample size.

Reporting of Effect Sizes

Cohen (1988) suggested that an effect size of less than 0.2 is considered small, and an effect size greater than 0.8 is considered large, with effect sizes ranging between the two numbers considered moderate (also see Lipsey & Wilson, 2001).

I will use random effects estimates, as opposed to fixed-effects estimates, to answer the research questions in this study. The fixed effects model assumes that random error results only from subject-level sampling error in the individual studies, whereas the random-effects model allows for the possibility that differences in effect size from study to study are associated not only with subject-level sampling error but also with variations such as study and intervention methods (see Lipsey & Wilson, 2001). A statistically significant *Q*-test (computed by CMA II) suggests that "the variability among effect sizes is greater than what is likely to have resulted from subject-level sampling alone" (Lipsey & Wilson, 2001, p. 117), and that the random-effects model should be used. However, because a non-significant *Q*-test may simply result from a lack of statistical power due to small numbers of effect sizes, particularly if those effect sizes are based on small subject

samples (Lipsey & Wilson, 2001), the random-effects model is generally a more conservative estimate of effects. I use the random-effects model throughout the analyses conducted in this study because the studies comprising the analyses generally will be subject to these constraints and because meta-analytic experts now recommend random effects estimates as standard practice in this kind of work (Shadish & Baldwin, 2003).

In order to determine if intervention effects are maintained over time, data was entered into CMA in order to create an effect size representing the change from post assessment to follow-up. The significance level of the effect size was used to determine whether there is deterioration in effect over time: a non-significant effect size would reveal that there is no change in effects over time, while a significant effect size would reveal diminution or gain in effect over time. The significance level of the Q-test between effect sizes would be used to determine if the effects of MRE on communication differ by publication status; for self-report and observed measures of communication; for men, women and couples; and for specific communication subconstructs. I also planned to explore the potential impact of moderating variables in cases where statistically significant effect sizes were available.

RESULTS

Q1: Descriptive Information about MRE Communication Intervention Research

The current meta-analysis was based on the results of 65 published and unpublished reports on the effects of MRE on communication. These 65 reports represent the results of 91 studies, which yielded 260 effect sizes that were used to calculate the overall effect sizes reported in this section. Of the 91 studies in the meta-analysis, 41 were experimental studies and 50 were quasi-experimental studies.

The descriptive information discussed in relation to the first research question is shown in Table 1. The grand majority of studies (71) were conducted on programs targeting currently married couples seeking enhancement. However, a handful of studies (13) tested the effects of premarital programs. Only 4 studies tested programs delivered during the transition to parenthood, and only 3 studies tested the effects of relationship education programs delivered to adolescents in high school settings.

Most of the studies described MRE programs that provided 9–20 hours of training (63), considered in this study to be "moderate" dosage. Nineteen studies described MRE programs that provided less than 9 hours of training, and only 7 studies described MRE programs that provided more than 20 hours of training.

The majority (57) of studies delivered MRE programs in university/therapy settings. A significant number (19) were delivered in religious settings. The remaining studies evaluated programs that were delivered in a variety of settings, including health care facilities, high-school/university classes, community settings, military programs, and participants' homes.

The primary content of the MRE programs in 70 studies in the meta-analysis was, understandably, communication skills training. For 15 studies, the primary content of the MRE curriculum delivered was marital knowledge and expectations. The remainder of studies delivered programs that focused primarily on motivations/virtues (5) or topics determined by couple discussion (1). Over 56 studies delivered programs that had secondary content. For 15 programs, the secondary content was communication skills training, for 21 studies the secondary content was expectations and knowledge, and for 16 studies it was motivations/virtues.

The 91 studies included in this meta-analysis evaluated the effects of 50 different MRE programs. Although these programs were developed by different authors using different theoretical frameworks, there is a good deal of overlap in the content of their curriculum; often different terms were used to refer to similar concepts. Four categories were used to code the content of the curriculum of MRE programs: communication skills, knowledge and expectations, motives/virtues, and content determined by couple discussion. Because detailed descriptions of most programs can be obtained easily, I will not review specific programs individually. However, I will use some examples of content from well-known programs to illustrate the mainstream MRE curriculum content.

The primary content for most MRE programs is communication skills. An example of an MRE program that focuses on teaching communication skills and "process rather than content" is the Couples Communication program (Miller, Wackman, & Nunnally, 1975, p. 75). The PREP program also focuses on teaching communication skills; in a description of the PREP curriculum, only 3 of the 12 sessions do not contain

an explicit reference to communication of some kind (Renick, Blumberg, & Markman, 1992).

Although there is wide variety overall in the types of communication skills taught in MRE, there are a number of skills that are commonly taught in MRE. For example, Relationship Enhancement (Guerney, 1977) and Couples Communication (Miller, Wackman, & Nunnally, 1975) teach participants to listen attentively, summarize their partner's statements, and convey understanding. These behaviors are similar to those associated with the "speaker-listener format" taught in PREP (Renick, Blumberg, & Markman, 1992). Many programs also teach skills designed to help couples resolve conflict. For example, PREP provides a structured model for solving problems that directs couples to set an agenda, brainstorm, agree and compromise, and follow-up (Markman, Stanley, Blumberg, & Markman, 2001).

The next most common focus of MRE programs is knowledge and expectations. In this category of content, the dissemination of information on specific topics is a greater focus than was teaching communication skills. Growing Together (Dyer & Dyer, 1990) is an example of such a program. Although Growing Together does teach a unit on communication and a unit on conflict resolution, the rest of the sessions cover the areas of family-of-origin, sexuality/intimacy, financial management, and developing a growth plan (Hawley, 1995). The Connections: Relationships and Marriage Curriculum (Gardner, Giese, & Parrott, 2004), a program designed for and disseminated to high school students to prepare them for marriage, also primarily focuses on teaching information relevant to specific content areas. For example, the program discusses

aspects of personality relevant to marriage, characteristics of a positive relationship, and common causes of faulty mate selection, among other topics.

Only five studies delivered MRE programs with content primarily focused on motivations/virtues. Some of the topics that were coded as motives/virtues included hope, empathy-centered forgiveness (Ripley & Worthington, 2002), love, respect, and friendship (Duncan, Steed, & Martino, 2006).

Many of the 50 MRE programs evaluated in the 91 studies included in this meta-analysis were unique to the study and no subsequent replication studies were conducted. However, a few programs have been tested on numerous occasions. (Remember that the studies in this meta-analysis represent only the studies that met our coding criteria, not all existing evaluation studies of various programs.) As shown in Table 2, the program most represented in the research examined in this meta-analysis was the Couples Communication program (Nunnally, Miller, & Wackman, 1975), which was evaluated in 22 studies. The next most evaluated program was the Prevention and Relationship Enhancement Program (PREP) (Renick, Blumberg, & Markman, 1992), which was evaluated in 11 studies. Programs based on the research of John Gottman were evaluated in 4 studies, and Marriage Encounter (Bosco, 1972) and Growing Together (Dyer & Dyer, 1990) were both evaluated in 3 studies. It should be noted that there is some variation in how these programs were delivered in various studies. For example, in one study the content of PREP was modified and added to in order to make the program more relevant to couples becoming parents for the first time (Carpenter, 1995). However, since the primary content and approach of the program was intact, it was still classified in this study as a PREP program, and this criterion was used in determining whether other

programs were just minor modifications of existing programs or could be considered original programs.

Q2: Undifferentiated Communication Effect Size Results

The second research question investigated whether MRE has a positive effect on individuals' and couples' communication. To answer this question, I first conducted analyses that combined all of the communication outcomes into an undifferentiated communication effect size (differentiated analyses are reported later). These effect sizes are displayed in Table 3. At the immediate, post-program assessment, the effect of MRE on communication was d_{ex} = .437 (p < .001) for experimental studies and d_{qe} = .230 (p < .001) for quasi-experimental studies. Both of these effect sizes are considered to be in the moderate range (Cohen, 1977; see p. 147 in Lipsey & Wilson, 2001). Thus, MRE has a moderate but significant effect on undifferentiated relationship communication.

Q3: Experimental versus Quasi-Experimental Studies

The effect size for experimental studies was larger than the effect size for quasi-experimental studies, but this difference was not statistically significant (Q = 3.51, ns).

Q4: Follow-Up Assessment Effect Size Results

Of the 91 studies included in the current meta-analysis, 55 conducted both post- and follow-up assessments. Most (44) of these follow-up assessments were conducted within six months of the conclusion of the intervention. Only 7 follow-up assessments were conducted more than one year after the beginning of the intervention. It should be noted that there were a few studies for which follow-up data could not be coded because not enough information was reported, and these studies are not included in the numbers reported above. Also, some studies conducted more than one follow-up assessment, but

in this case only one assessment, the one occurring closest to 12 months after the intervention, was coded. Furthermore, there were six studies that conducted pre-assessments and follow-up assessments, but no immediate post-assessment (an assessment had to be conducted within three weeks of the conclusion of a program in order to be coded as an immediate post-assessment).

I first conducted analyses using all of the follow-up assessment data available, including studies that did not conduct separate post-assessments, to test for possible deterioration (or gain) of program impact on the undifferentiated communication outcome over time. (Note: the follow-up effect sizes for other more specific outcomes are reported in their corresponding sections). The follow-up effect size was $d_{ex} = .428$ ($p < .001$) for experimental studies and $d_{qe} = .168$ (ns) for quasi-experimental studies. Similar to the post-assessment effect sizes, the follow-up effect size for experimental studies was not significantly higher than that for quasi-experimental studies ($Q = 2.04$ (ns)).

As shown in Table 3, I also conducted analyses that included only those studies that directly tested change over time for communication effects, that is, studies that conducted both an immediate post-assessment and a follow-up-assessment. This analysis was justified because the first analysis compared post and follow-up effects across studies, confounding real differences between post and follow-up effects with between-study differences; within-study comparisons do not have this problem. This limited analyses to $k = 13$ experimental and $k = 26$ quasi-experimental studies. As shown in the lower panel of Table 3, the resulting effect sizes are similar to the results of previous analyses. For experimental studies, the post-assessment effect size was $d_{ex} = .359$ ($p < .05$) and the follow-up effect size was $d_{ex} = .293$ (ns). For quasi-experimental studies, the post-

assessment effect size was d_{qe} = .323 (p < .01) and the follow-up assessment effect size was d_{qe}= .212 (ns). The difference between the effect sizes for experimental and quasi-experimental studies was not significant for either post-assessment effect sizes (Q = .03, ns) or follow-up effect sizes (Q = 0.14, ns). The follow-up assessment effect sizes deteriorated somewhat for both experimental and quasi-experimental studies, but stayed in the moderate range.

Finally, I computed effect sizes that represent the change in effect size from post-assessment to follow-up assessment. The change in effect size was d_{ex} = -.056 (ns) for experimental studies and d_{qe}= -.086 (*ns*) for quasi-experimental studies. Thus, only the quasi-experimental effect size shows slight but insignificant deterioration from post to follow-up assessment.

Overall, the effects of MRE on communication did not deteriorate significantly over time. Although quasi-experimental studies did produce smaller effect sizes than experimental studies did, the difference was not significant.

Q5: Publication Bias

Of the 91 studies included in the current meta-analysis, 58 were unpublished studies and 33 were published studies. The large number of unpublished studies included in this meta-analysis allowed me to test directly for publication bias. As shown in Table 4, in only one out of four comparisons was there a significant difference between the effect sizes of published and unpublished studies. In this instance, the effect size at follow-up was d_{ex} = .682 (p < .001) for published studies and d_{ex} = .029 (ns) for unpublished studies (Q = 5.48, p < .05). This finding should be regarded cautiously because of the small number of studies involved in this comparison: k = 10 published

studies and $k = 8$ unpublished studies. In sum, I found little statistical evidence of publication bias in the body of research analyzed for the current meta-analysis. However, although there was little evidence of statistical differences between published and unpublished effect sizes, effect sizes for published studies were noticeably larger than effect sizes for unpublished studies in all four comparisons. Thus, published studies may overestimate the effect of MRE somewhat, although this overestimation cannot be captured statistically.

Q6: Self-Report versus Observed Assessment Results

I next conducted analyses to test for differences between effect sizes calculated from self-report and observed measures. The 64 studies that used self-report methods of measuring communication used 20 different self-report communication scales. The most popular scales were the Marital Communication Inventory (MCI; 24 studies; Bienvenu, 1970), Primary Communication Inventory (PCI; 6 studies; see Navran, 1967), ENRICH (4 studies; Fowers & Olson, 1989), and the verbal aggression subscale of the Conflict Tactic Scale (CTS; 4 studies; Straus, 1979). The 50 studies that used observational methods of measuring communication used 24 different coding schemes. The most popular coding schemes included the Marital Interaction Coding Scheme (MICS; 10 studies; Hops, Wills, Patterson, & Weiss, 1972), the Kategoriensystem für Partnershacftliche Interacktion, or the Coding system for marital/family interaction (KPI; 6 studies; Hahlweg et al., 1984), the Hill Interaction Matrix (HIM; 5 studies; Hill, 1965); and the Communication Rapid Assessment Scale (CRAS; 4 studies; Joanning, Koval, & Brewster, 1982). (It should be noted, however, that even though a coding scheme may have been used in more than one study, it was not always used in the same way.)

The analyses revealed that observed measures yielded significantly higher effect sizes than self-report measures. As shown in Table 5, for experimental studies at post-assessment d_{ex} = .173 (ns) for self-report outcomes and d_{ex} = .849 (p < .001) for observed outcomes. The difference between these effect sizes was highly significant (Q = 19.58, p < .001). There was little deterioration of either of the effect sizes at follow-up assessment. At follow-up d_{ex} = .144 (ns) for self-report outcomes and d_{ex} = .831 (p < .001) for observed outcomes, and these effect sizes were also significantly different (Q = 9.13, 1, p < .01).

The results for quasi-experimental studies replicated this pattern. At post-assessment, there was a highly significant difference (Q = 20.69, p < .001) between the self-report effect size (d_{qe} = .057, ns) and the observed effect size (d_{qe} = .651, p < .001). The effect size at follow-up was d_{qe} = .046 (ns) for self-report outcomes and d_{qe} = .443 (p < .01) for observed outcomes. However, the difference between these two effect sizes did not quite reach the conventional level of significance (Q = 3.71, p = .054), probably due to the reduced number of effects used to compute the averaged effect sizes.

I wanted to test for differences between self-report and observed effect sizes among only those studies that used both methods (i.e., observed and self-report) to avoid confounding differences between measurement type with between-study variation, but the k for these analyses were too small to yield reliable results.

Q7: Unit of Analysis (Gender) Effect Size Results

Before reviewing the results of the analyses based on the unit of analysis, it should be noted that the effect sizes calculated for these analyses were not aggregated to the

study level, which was done with all other effect sizes. Also, because the data set contains non-independent scores from spouses, the tests are potentially biased.

In the analyses I conducted to test for equivalence of effect size based on unit of analysis, in general, the effect sizes for males and females were quite similar. As shown in Table 6, for experimental studies at post-assessment, the effect sizes was d_{ex} = .244 (p < .05) for females and was d_{ex} = .222 (ns) for males. At follow-up assessment, the effect size was d_{ex} = .399 (ns) for females and was d_{ex} = .378 (ns) for males. The results for quasi-experimental studies were similar; at post-assessment the effect size was d_{qe} = .130 (ns) for females and d_{qe} = .111 (ns) for males. At follow-up assessment the effect size was d_{qe} = .054 (ns) for females and d_{qe} = .185 (ns) for males.

Although the effect sizes for females and males were similar, the effect sizes calculated for couple-level measures tended to be larger than effect sizes for males and females. For experimental studies, the effect size for couples at post-test was d_{ex} = .612 (p < .001) and at follow-up assessment was d_{ex} = .461 (p < .05). The difference between couple effect sizes and the effect sizes for males and females was significant at post-assessment (Q = 8.76, p < .05), but not at follow-up assessment (Q = .08, ns).

The pattern of couples showing larger effect sizes than males and females was present for quasi-experimental studies. The effect size for couples was d_{qe} = .454 (p < .01) at post-assessment and d_{qe} = .400 (p < .05) at follow-up assessment. However, these larger effect sizes were not significantly different from the effect sizes for females and males at post-assessment (Q = 2.56, ns) or follow-up assessment (Q = 1.63, ns).

Overall, there appears to be no difference in the magnitude of effect of MRE on males and females' communication behavior, but measures that assess couple

communication tend to report larger effect sizes. I conducted chi-square analyses in order to test whether this affect occurred because measures that use couples as the unit of analysis are more likely to be observational assessments, which tend to produce larger effect sizes than self-report assessments. The results of the chi-square test were significant for both experimental Pearson χ^2 (1, N = 48) = 7.06, p = .00, Cramér's V = .38. Over two-thirds (19 of 29) of couple measures were observed, rather than self-report measures. In contrast, almost three-fourths (14 of 19) of assessments assessing males and females were self-report measures rather than observed. The same pattern existed for quasi-experimental studies: Pearson χ^2 (1, N = 32) = 8.13, p = .004, Cramér's V = .50. Almost three-fourths (13 of 18) couple measures were observed measures while over three-fourths (11 of 14) of male or female assessments were self-report measures rather than observed.

Thus, there is a confound between the unit of analysis and method of assessment, so the couple-level results should not be given too serious of consideration. What can be taken from this set of analyses, however, is that no gender differences appear to exist in the effectiveness of marriage education.

Q8: Communication Subconstructs Effect Size Results

I next conducted analyses to test for differences in effect sizes based on specific communication outcomes. The review I conducted on communication research and the assessment tools used in the studies included in this meta-analysis revealed two different outcomes to be investigated: communication versus conflict resolution. Furthermore, conflict resolution outcomes can be differentiated by positive and negative conflict

resolution behaviors. Before describing the effects for these different outcomes, I will first describe how communication outcomes were categorized.

Negative Conflict Resolution

Communication outcomes were categorized as relating to negative conflict resolution if the following two conditions applied: (1) the assessment related to participants' perceptions of their behavior during conflict and (2) the perceptions or behaviors assessed have been associated with negative outcomes in relation to conflict resolution (e.g., criticism and defensiveness; Gottman & Silver, 1999). An example of a study that reported negative conflict resolution outcomes is Hahlweg et al.'s (1998) evaluation of the German version of the PREP program. As part of the evaluation in this study, researchers coded videotapes of couples participating in 10-minuted problem-solving conversation using the KPI. Four of the 10 verbal categories of this coding system encompass behaviors that relate to negative outcomes in conflict resolution: criticism (i.e., rejection and expression of dislike/disapproval of a specific behavior), negative solution (i.e., something the speaker would like the other to do to solve the problem), justification (i.e., excuse of one's own behavior and denial of responsibility, and disagreement (e.g., "yes—but" statements). In this meta-analysis, 16 measures in 24 studies provided outcomes that were coded as negative conflict resolution outcomes.

Positive Conflict Resolution

Communication outcomes were categorized as relating to positive conflict resolution if the following two conditions applied: (1) the assessment related to participants' perceptions of their behavior during conflict and (2) the perceptions or behaviors assessed have been associated with positive outcomes in relation to conflict

resolution (e.g., acceptance and problem-solving; Gottman & Silver, 1999; Ridley & Nelson, 1984). An example of a study that reported positive conflict resolution outcomes is Hahlweg et al.'s (1998) evaluation of the German version of the PREP program. As part of the evaluation in this study, researchers coded videotapes of couples participating in 10-minuted problem-solving conversation using the KPI. Four of the 10 verbal categories of this coding system encompass behaviors that relate to positive outcomes in conflict resolution: self-disclosure (i.e., expression of feelings, wishes, or needs), positive solution (i.e., specific, constructive proposals, and compromise), acceptance of other (i.e., paraphrase, open question, and positive feedback), and agreement (i.e., direct agreement, acceptance of responsibility, and assent). In this meta-analysis, 25 measures in 38 studies provided outcomes that were coded as positive conflict resolution outcomes.

Positive Communication

Communication outcomes were categorized as relating to positive communication if the following two conditions applied: (1) the assessment related to participants' perceptions of or behavior during non-conflict communication and (2) the perceptions or behaviors assessed have been associated with positive relationship outcomes (e.g., emotional support; Burleson, 2003). An example of this is found in Worthington, Buston, and Hammonds' (1989) evaluation of two MRE programs, in which they use the Primary Communication Inventory as an outcome. This measure focuses on assessing intimacy promoting communication behaviors outside of conflict. Examples of items in this measure are "Do you and your spouse talk about things in which you are both interested?" and "How often do you and your spouse discuss your personal problems?" In

this meta-analysis, 9 measures in 12 studies provided outcomes that were coded as positive communication.

Global Communication/Conflict Resolution

Communication outcomes were categorized as global communication/conflict resolution if they consisted of items or codes that did not relate to one of the previous categories or related to more than one of the previous categories. For instance, the Marital Communication Inventory (MCI) is a measure of general relationship communication that includes items relating to negative conflict resolution (e.g., nagging, insults, silent treatment), positive conflict resolution (e.g., calm discussion), and positive communication (e.g., self-disclosure and empathy). (It should be noted, however, that in 1 instance (Harrington, 1998), subscales of the MCI were reported which allowed more precise categorization of the outcome data provided. So, in one case, I was able to code the MCI in the more specific categories I created, but in most cases I had to treat it as a global measure.) In this meta-analysis, 3 measures in 17 studies reported outcomes that were coded as global communication/conflict resolution. However, these global communication/conflict resolution outcomes were not used in the comparison of communication subconstructs because they did not provide any more precision than was available from the undifferentiated communication effect size.

Communication Subconstructs Effect Sizes

First, I conducted analyses to simply compare (positive) communication and (positive and negative) conflict resolution outcomes. As shown in Table 7, in general, effect sizes for conflict resolution outcomes were significantly larger than effect sizes for communication outcomes. For example, for experimental studies at post-assessment, the

effect size was d_{ex} = .564 (p < .001) for conflict resolution and d_{ex} = .442 (ns) for communication outcomes (Q = .45, ns). At follow-up assessment the effect size was d_{ex} = .645 (p < .001) for conflict resolution and d_{ex} = -.388 (ns) for communication (Q = 6.25, p < .05).

The pattern for quasi-experimental studies had both similarities and differences as the pattern for experimental studies. At post-assessment, the effect size was d_{qe} = .298 (p < .01) for conflict resolution and d_{qe} = .092 (ns) for communication (Q = 1.56, ns). The follow-up effect size was d_{qe} = .163 (ns) for conflict resolution and d_{qe} = .370 (ns) for communication. However, the difference between the conflict resolution effect size and the communication effect size at follow-up was not significant (Q = .62, ns). The comparison of effect sizes between conflict resolution and communication should be regarded with caution because the cell sizes were 10 studies or under for communication outcomes (see Table 7).

I also conducted analyses comparing positive (communication and conflict resolution) outcomes to negative (conflict resolution) outcomes. In three of the four comparisons, effect sizes for positive outcomes were larger than the effect sizes for negative outcomes. In the comparison in which the negative effect size was larger than the positive effect size, only 6 studies were used in calculating the negative effect size, so this estimate should not be relied upon. Although the positive effect sizes did tend to be larger than the negative effect sizes, these differences did not reach the conventional level of significance.

Specific Comparisons

The next step was to conduct analyses on positive communication, positive conflict resolution, and negative conflict resolution. (Again, note that the Global Communication/Conflict Resolution category was not compared because it did not provide enough precision to add to what was known beyond the undifferentiated communication effect size.) Based on the results of previous comparisons between these subconstructs, I expected that positive conflict resolution outcomes would reflect the largest effect sizes, although this difference may not reach traditional levels of statistical significance. As shown in Table 7, this expectation was met in three of four comparisons. While this pattern of findings exists for most comparisons, it does not for experimental follow-up effect sizes. However, in this case, the number of effect sizes used to calculate the effect sizes in this comparison were particularly small, and, therefore, should not be counted on for reliable estimates of the effect of MRE on various communication subconstructs.

Although some comparisons could not be relied on because of small cell size and only one comparison revealed statistically significant differences, the general pattern suggests effect sizes based on positive outcomes and conflict resolution outcomes tend to be larger than effect sizes based on negative outcomes and communication outcomes, although the difference tends to be relatively small.

Q9: Moderator Analyses

A range of potential moderator variables had been coded for intended analyses on sample and program characteristics. However, the investigation of these moderators was precluded by a uniform lack of necessary power to yield reliable results.

DISCUSSION

In this meta-analytic study I coded 65 reports yielding 91 studies that produced 260 effect sizes in order to investigate the effectiveness of marriage and relationship education on couples' communication. I will first review my findings and discuss their possible implications. Then I will address some limitations in the body of MRE evaluation research.

Overall Effects

Overall, MRE produces significant, moderate effects when considering the mélange of communication outcomes reported in evaluation studies. At post-assessment, the undifferentiated effects were in the .20–.40 range. Moreover, these effects generally were maintained (generally in the .20–.40 range) over the first year from treatment, a finding consistent with previous research on follow-up assessments (Nicholson & Berman, 1983).

It may be helpful to consider what such effect sizes mean in terms of the original test metrics used in evaluation. One of the more common communication measures used in studies is the PCI (cite). In this measure, individuals rate 25 items on a five-point Likert scale ranging from *1 = Never*, to *5 = Very frequently*. The range of scores for this measure is 25–125. Given an effect size of .437 (undifferentiated communication, experimental studies) and a standard deviation of 10, if an individual had a score of 100 on this assessment before intervention, and if they achieved the average change represented by the effect size, their score after MRE intervention would be 104. This means that they would have improved their scores on 4 of the 25 items (e.g., from *4 = Frequently* to *5 = Very frequently*) in the measure. Given an effect size of .23

(undifferentiated communication, quasi-experimental studies), an individual's score would increase from 100 to 102, an improvement on 2 of the 25 items.

It is also of note that the effect sizes produced in this meta-analysis are comparable to the effect sizes produced in other meta-analyses on various types of interventions (d = .30–75 for parent effectiveness training, maternal sensitivity to newborns programs, adolescent pregnancy prevention programs, alcohol and drug abuse prevention programs, and stress management programs; see Table 1 in Lipsey and Wilson, 1993). Going beyond preventative treatments, Lipsey and Wilson estimated the median effect size of psychological, educational, and behavioral treatments from 156 meta-analytic studies to be d = .44. The effects observed in this meta-analysis are within this general range. Meta-analytic studies of the effectiveness of marital therapy estimate somewhat stronger effects: d = .83 (Baucom, Hahlweg, & Kuschel, 2003; Shadish & Baldwin, 2003). Thus, while MRE does not produce as much change in couples as therapeutic interventions do, it is as effective, or more effective, than other valuable prevention programs. Also, the educational format may be less threatening and less resource-intensive to couples compared to therapy, thus encouraging wider participation. Furthermore, when considering that MRE is designed to help non-distressed couples maintain or enrich their relationships, there should be relatively less room for improvement among couples participating in MRE than couples participating in therapeutic interventions. Thus, a smaller effect size for MRE than for therapy is actually appropriate. This should be encouraging news to those promoting MRE as a way to help couples form and sustain healthy marriages.

Research Design

I conducted separate analyses for studies with experimental and quasi-experimental designs. This allowed me to analyze the most comprehensive set of MRE evaluation studies to date. Other meta-analytic studies have found substantial effect-size differences between different designs, although the direction of bias is not consistent (Lipsey & Wilson, 1993; Shadish & Ragsdale, 1996). However, I found that although quasi-experimental studies produced lower effect sizes fairly consistently, these differences were not significantly different. Thus, the artificial demands of true randomization may not be essential to every MRE program evaluation. Quasi-experimental studies yield similar effects as experimental studies. This should be welcome news to field practitioners who seldom have the resources or the circumstances to conduct studies with true randomized control groups.

Publication Bias

Meta-analysts worry whether published studies, which are easier to find than unpublished studies, overestimate true effects. The problem of publication bias is especially salient in areas of study where sample sizes are generally small (Begg, 1994), which is the case for MRE evaluations. While numerous techniques have been developed to estimate publication bias indirectly (Begg, Vevea & Woods, 2006), I was able to examine this possibility directly because of the large number of unpublished studies included in this meta-analysis. Only one of the four comparisons of published versus unpublished effect sizes revealed publication bias, and this comparison was weakened by small cell size (k = 8, 10). However, although there was little evidence of statistical differences between published and unpublished effect sizes, effect sizes for published studies were noticeably larger than effect sizes for unpublished studies in all four

comparisons. Thus, published studies may overestimate the effect of MRE somewhat, although this overestimation cannot be captured statistically. This suggests that estimating the true effect size of MRE on communication outcomes may require taking account of unpublished studies.

Method of Assessment

Self-report and observed measures are associated with quite different assumptions that relate to the interpretation of their results (Heyman, 2001). Because of these differing assumptions, I conducted separate analyses to investigate the possibility of differing effects. Observed measures consistently produced much larger effect sizes than self-report measures. According to such results, it appears that MRE is capable of producing large effect sizes, but these larger effect sizes may be obscured by insensitive (i.e. self-report) measures. If this interpretation of these findings is accurate, than it may be appropriate for MRE evaluation researchers to invest in using observational methods of assessment in order to capture the effects of MRE on communication.

The nature of observed and self-report assessments offers another possible interpretation to these findings. It is possible that observational methods actually overestimate the effect of MRE on communication. Because observational methods focus on the display of concrete behaviors, which often closely mirror the behaviors taught in the program, it has been hypothesized that the assessments may be subject to reactivity affects, where clients try to please the researcher by demonstrating the behaviors they have been taught (Heyman, 2001). This could be an issue particularly in studies where researchers developed their own coding scheme to mirror the skills specifically taught in their MRE intervention (e.g., Ridley, Avery, Harrell, Haynes-Clements, & McCunney,

1981). For studies like this, large effect sizes could simply mean that couples are capable of producing certain communication behaviors, but what is not known is whether they actually produce these behaviors outside of the context of evaluation (see Spitzberg, 2003). Thus, the observed effect size could be inflated compared to the self-report effect size. Also, although observational methods can reliably discriminate between distressed and nondistressed couples, couples do tend to show less negativity in communication when they are observed, thus reducing variability in the negativity expressed, which could possibly inflate the effect size (Heyman, 2001).

Likewise, self-report assessments may underestimate the effect of MRE on communication. Self-report assessments may be subject to reporters' attributional biases and selective attention (Heyman, 2001). Thus, while couples may be able to display various communication behaviors learned in a marriage education program, participants may not yet recognize or otherwise attend to positive changes in their overall communication patterns. Thus, even though there may be an increase in positive behavior, the memory of any negative communication or the failure to recognize more recent positive communication may overshadow perceptions of positive change in communication patterns.

In considering the generalizability and impact of communication behaviors taught in MRE, it is relevant to consider whether communication behaviors "are manifest across time and contexts, or are skills contextually specific and unique to a given episode of interaction" (Sptizberg, 2003, p. 118). Such a question has potentially high impact on intervention, since if behaviors are not generalizable across specific episodes, communication training may not be the best way to change couples' relationships. More

in-depth research is needed to fully investigate such a question. While the limited evidence from this analysis may suggest that the behaviors couples produce in research labs possibly overestimates the impact that communication skills training has on their perception of behavior, there is evidence that improvements in communication due to MRE does endure beyond post-assessment. This suggests that communication training can create durable change in communication.

Unit of Analysis

I was able to test for gender differences, but I found no evidence of effect size differences for women and men. This finding is particularly encouraging because men are often less enthusiastic about participation in MRE than women are, and there is cause for concern that this difference in interest level may result in differing levels of effect for men and women. Yet, it appears that men and women benefit equally from MRE.

In investigating the effect of unit of analysis on the effect of MRE on communication, I did find that couple scores yielded significantly larger effect sizes than scores of individuals by gender. However, this finding is explained by the fact that the grand majority of couple scores in this meta-analysis are derived from observed, rather than self-report, measures, and observed measures yield significantly larger effect sizes. Thus, the couple-level effect sizes should not be given undue attention. What is meaningful from these analyses is that males and females experience the same level of improvement in communication from MRE.

Communication Subconstructs

The results of this meta-analysis reveal that the effect of MRE is largest for positive conflict resolution outcomes, but not to a statistically significant degree.

Although this finding is not statistically significant, it is possible that positive conflict resolution behaviors may be the most amenable to change, and thus a focus on these behaviors in MRE may yield the best results.

However, the lack of statistically significant differences in outcome measures may not be surprising when one considers that many MRE programs include curriculum on more than one of the communication categories investigated in this meta-analysis. One outcome measure may not be significantly larger than another simply because each communication outcome category investigated in these analyses may have received enough attention in intervention curriculum to initiate meaningful change in that aspect of couples' communication.

Another possible explanation for statistically similar effect sizes for various communication outcomes is that improvements in one type of communication behavior may lead to improvements in other types of communication. For example, Gottman, Ryan, Swanson, and Swanson (2005) found that interventions with curriculum focusing on friendship in marriage (including content relevant to the positive communication outcome category of this meta-analysis) were capable of improving couples' conflict resolution behavior. If this were the situation, then researchers should not expect MRE to yield significant differences in effect sizes for various communication outcomes because improvements in one type of communication will contribute to improvements in other types of communication.

It should also be pointed out that relatively few studies assessed positive communication outcomes. Thus, even though these effect sizes were consistently smaller than the effect sizes for the other two communication outcome categories, the effect sizes

for the positive communication outcome are not as reliable. Positive communication has received much less attention in research than conflict resolution (Heyman, 2001), but given the relevance of positive communication to quality relationships (Burleson, 2003) more research should evaluate whether and how MRE can promote such communication.

While it is exciting that MRE is capable of creating moderate improvements in couples' communication behaviors, it is also important to consider what effect this actually has on couples' relationships. While communication is closely associated with relationship quality (Kelly et al., 2003; Weigle 2003), it should not be assumed that improvements in communication automatically translate into improvements in relationship satisfaction since the relationship between communication and relationship satisfaction can be moderated by gender, distress level, and other factors (Burleson & Denton, 1997). While previous meta-analytic research has confirmed that MRE also increases couples' satisfaction (Hawkins, Blanchard, Fawcett & Jenkins, 2007), more research is needed to understand how increases in satisfaction and communication due to MRE are related. A valuable contribution to future research would be to use meta-analytic data to model the relationship between communication outcomes and satisfaction/quality outcomes in evaluation studies of MRE.

Limitations

The diversity of the samples in the studies included in this meta-analysis was too weak to investigate whether MRE is more or less effective for couples from diverse racial/ethnic or economic backgrounds. Unfortunately, studies with diverse samples are limited in the body of MRE work (Ooms & Wilson, 2004), so my tests were

underpowered. Fortunately, work with more diverse samples is currently going on and will yield valuable information in the next few years (Dion & Hawkins, 2003).

Similarly, samples with substantial numbers of couples experiencing relationship distress are limited (DeMaria, 2005). MRE studies with more distressed couples are needed. It is possible that non-distressed couples will show less improvement because they have less room for improvement. However, it is also possible that distressed couples would show less effect simply because MRE is designed for couples not in serious distress and MRE curriculum and techniques may not meet their relational needs.

Further Meta-Analytic Research

Finally, I reflect briefly on further meta-analytic work that would be valuable. In order to introduce some of the research questions that remain, I refer to an important reminder from Kelly et al. (2003) about the appropriate interpretation of results from intervention evaluation studies. First, they remind us that "null findings might mean that . . . there are much better ways of delivering such interventions" (p. 740). More work is needed to determine how various aspects of intervention delivery affect communication outcomes. In particular, many questions remain as to how program content affects changes in communication. As Gottman et al. (2005) found, changes in a given communication outcomes are not always best initiated by program content focusing on that particular outcome. We do not yet know which topic (or more likely, which combination of topics), let alone specific techniques, is the most effective at improving various communication outcomes. While 70 of the 91 studies in this meta-analysis used programs that had communication training as the primary focus, it would be interesting to

determine if programs that focus on other content areas are as effective at improving couples' communication.

There is also need to explore more intervention moderators, such as program setting, as well as comparisons among the more common, institutionalized programs and between institutionalized and non-institutionalized programs. Conducting reliable analyses on these types of moderators will become possible as more evaluation research examining diversity in these aspects of sample and intervention are conducted. While MRE considered as a whole produces modest effects on communication, perhaps there are types of interventions that are capable of consistently producing larger effects. In order to strengthen the research base needed to investigate such questions, continued research on more creative and diverse MRE interventions is need.

The data analyzed in this meta-analysis also is limited in terms of the unit of analysis used. In order to use as much research as possible, studies analyzing data for couples and individuals/by gender were included. While there were no apparent gender differences, the data analyzed by gender did fail to account for the non-independence of the data. A growing body of MRE evaluation research exists that models couple data in a way that accounts for non-independence and potential gender difference. Future meta-analytic research should draw on these sources of data and conduct the sophisticated meta-analytic techniques needed to investigate these issues further.

Concerning the communication outcome categories used in this meta-analysis, it should again be noted that the categories used in this study do not represent an attempt to create a comprehensive, representative organizing heuristic for relationship communication. These categories simply represent the best sense that I could make of the

various communication outcomes present in the literature based on well-known research. While I think these categories to be a responsible way of using the data available in order to glean as much information as possible about the topic, a more sophisticated and comprehensive analysis and categorization of relational communication may be possible. Many others have recognized the need for stronger theory in the area of relational communication (Heyman, 2001; Wilson & Sabee, 2003) and I echo this call. In order to build and support such an overarching theory, it is important for research to use measures more consistently so that more precise communication outcomes can be investigated (Heyman, 2001).

Although this meta-analysis has conducted the most sophisticated and specific analyses available on the effect of MRE on communication, there are still many unanswered questions about the effect of MRE on specific aspects of couples' communication. For instance, there are still a number of concepts represented in the various outcome categories used in this meta-analysis, and it is possible that there are specific communication behaviors or concepts that are more amenable to change through MRE than others. As researchers continue to further develop communication theory and create more consistent conceptualizations and assessments of communication, more detailed communication analyses may be possible.

Also, I excluded from this study a large number of evaluation studies employing one-group/pre-post designs, or comparing one treatment to another valid treatment (33 reports yielding 52 codable studies). Yet many of these studies were well conceptualized and reported results that shed further light on the practice of MRE. While their use in meta-analysis is challenging, these studies deserve greater attention in future research.

The process of coding and analyzing data for this meta-analysis also brought to light a number of issues relating to how data can be reported in ways that will make future meta-analytic research more feasible. Surprisingly, one of the most difficult aspects of coding data for this meta-analysis was determining the appropriate *N* to use for calculation of an effect size. While this is seemingly basic information, in a number of cases it was difficult to determine the number of individuals assigned to various conditions and how overall attrition rates applied to specific treatment groups.

Some data were also difficult or impossible to code because they were not reported in a usable format. For this type of meta-analysis, all that is needed to calculate an effect size is the N, means, and standard deviations. (Calculating pre-post effect sizes also requires a pre-post correlation, which is almost never reported. This is why one-group/pre-post studies had to be excluded from analyses.) However, many authors failed to report standard deviations for their data, particularly in more recent studies where higher-order statistical models were used to analyze data. While there are some other pieces of information that can be used to calculate effect sizes (e.g., means and p-values, etc.), often if an author did not report standard deviations, there was no other codable data. At times, we were able to contact authors of more recent studies to obtain needed information, but this technique can be timely, inconvenient, and impractical. Meta-analytic efforts will be served by the more through reporting of appropriate data.

It is also important for researchers to report characteristics of their sample more comprehensively. For instance, many studies failed to report the ethnicity ($k = 54$), education level ($k = 13$), and level of distress ($k = 30$) of their samples. Without this information, these studies cannot be included in analyses investigating such moderators.

CONCLUSION

The analyses conducted in this meta-analysis yielded a number of findings relevant to policy, intervention, and research. First, there is sufficient evidence to promote the widespread implementation of MRE to policymakers. MRE produces modest but reliable effects on couples' communication. These effects are maintained for short-term follow-up assessments. Although MRE does not produce effect sizes as large as therapy (Baucom, Hahlweg, & Kuschel, 2003; Shadish & Baldwin, 2003), because of its lower financial and time cost to couples, it represents a viable way to improve couples relationships, which have broad implications for the well-being of society (Institute for American Values, 2005). In terms of intervention, MRE appears to be equally beneficial for males and females and is particularly effective in increasing couples' reports/use of positive conflict resolution behaviors. When researchers invest in measuring communication outcomes with intensive observational methods, the effects appear to be quite strong.

Despite these encouraging results, many important issues remain for researchers to address, including the homogeneity of intervention samples and techniques and issues regarding intervention curriculum and assessment. The current research on the effects of MRE on communication will also become more meaningful as research continues to clarify the relationship between couples' communication and other important relationship variables such as satisfaction. While these issues and others call for continued attention to the topic of MRE and communication outcome, the results of this study do provide important gains in current understanding of the efficacy and effectiveness of MRE in relationship to communication.

REFERENCES

Key
* = Coded evaluation studies
# = Unable-to-code evaluation studies
+ = Data replicated in another study (not coded as a unique study)

*Adam, D., & Gingras, M. (1982). Short- and long-term effects of a marital enrichment program upon couple functioning. *Journal of Sex & Marital Therapy*, *8*(2), 97–118.

*Adler-Baeder, F., Kerpelma, J. J., Schramm, D., Higginbotham, B. J., & Paulk, G. A. (in press). The impact of relationship education on low-resource, black and white high school students. *Family Relations*.

#Amatea, E., & Clark, J. (1984). A dual career workshop for college couples: Effects of an intervention program. *Journal of College Student Personnel*, *25*(3), 271–272.

*Anderson, L. D. (1984). The effects of a home-based, audio cassette Marriage Enrichment course on marital communication and marital adjustment (Doctoral dissertation, North Texas State University, 1984). *Dissertation Abstract International*, *45*, 1989A.

*Avery, A. W., Ridley, C. A., Leslie, L. A., & Milholland, T. (1980). Relationship enhancement with premarital dyads: A six-month follow-up. *The American Journal of Family Therapy*, *8*(3), 23–30.

*Bagarozzi, D. A., Bagarozzi, J. I., Anderson, S. A., & Pollane, L. (1984). Premarital Education and Training Sequence (PETS): A 3-year follow-up of an experimental study. *Journal of Counseling and Development*, *63*, 91–100.

Baldwin, S. A., & Shadish, W. R. (2006). Publication bias in meta-analyses. Working paper, Brigham Young University, Provo, Utah

Baucom, D. H., Hahlweg, K., & Duschel, A. (2003). Are waiting-list control groups needed in future marital therapy research? *Behavior Therapy*, *34*, 179–188.

*Baughman, D. A. (1981). The effect of self-esteem, relationship satisfaction, conceptual complexity and present relationship communication patterns on the learning of communication skills: A field study (Doctoral dissertation, University of Illinois, 1981). *Dissertation Abstracts International*, *42*, 3910A.

*Beaver, W. A. (1977). Conjoint and pseudo-disjunctive treatment in communication skills for relationship improvement with marital couples (Doctoral dissertation, Marquette University, 1978). *Dissertation Abstracts International*, *39*, 3361A-3362A. (UMI No. 78-2, 4332).

Begg, C. B. (1994). Publication bias. In H. Cooper & L. V. Hedges (Eds.), *The handbook of research synthesis* (pp. 399–410). New York: Russell Sage Foundation.

Berger, R., & DeMaria, R. (1999). Epilogue: The future of preventive interventions with couples. In R. Berger & M. T. Hannah (Eds.), *Preventative approaches in couple's therapy* (pp. 393–428). Philadelphia: Brunner/Mazel.

*Biderman, R. (1982). The effects of the Minnesota Couples Communication Program on communication, adaptability and cohesion: A quasi-experimental investigation (Doctoral dissertation, University of Minnesota, 1982). *Dissertation Abstracts International*, *43*, 2600A.

Bienvenu, M. J., Sr. (1970). Measurement of marital communication. *The Family Coordinator*, *56*, 153–181.

Biostat. (2006). Comprehensive Meta-Analysis. (Version no. 2.2). Englewood, NJ.

#Blackman, L. C. (1992). The effect of a marriage enrichment program on marital satisfaction and gender role attitudes among African American couples (Doctoral dissertation, The Florida State University, 1992). *Dissertation Abstracts International*, *53*, 2983A.

*Boike, D. E. (1977). The impact of a premarital program on communication process, communication facilitativeness, and personality trait variables of engaged couples. (Doctoral dissertation, The Florida State University, 1977). *Dissertation Abstracts International*, *38*(5-A), 3083.

#Bonjean, M. J. (1976). The effects of participation in marriage encounter's continuous dialogue group on marital communication (Doctoral dissertation, Northern Illinois University, 1976). *Dissertation Abstracts International*, *37*, 7539A.

Bosco, A. (1972). *Marriage Encounter: The rediscovery of love*. St. Meinrad, IN: Abbey Press.

*Braukhaus, C., Hahlweg, K., Kröger, C., Groth, T., & Fehm-Wolfsdorf, G. (2001). Darf es ein wenig mehr sein? Zur wirksamkeit von Auffrischungssitzungen bei der Prävention von Beziehungsstörungen [A little bit more? The impact of adding booster sessions to a prevention training program for marital distress (German)]. *Verhaltenstherapie*, *11*, 56–62.

*Breen, R. B. (1989). The effects of a communication skills workshop on dyadic adjustment in marital relationships. (Doctoral dissertation, East Texas State University, 1989). *Dissertation Abstracts International*, *50*, 1215A.

*Brock, G. W. (1978). Unilateral marital intervention: Training spouses to train their partners in communication skills. *Dissertation Abstracts International*, *39*(11-B), 5511–5512. (UMI No. AAT 7909049).

*Brock, G. W., & Joanning, H. (1983). A comparison of the Relationship Enhancement Program and the Minnesota Couple Communication Program. *Journal of Marital and Family Therapy*, *9*(4), 413–421.

Brotherson, S. E., & Duncan, W. C. (2004). Rebinding the ties that bind: Government efforts to preserve and promote marriage. *Family Relations*, *53*, 5, 459–468.

*Brown, J. O. (1993). Effects of Adventist engaged encounter on role expectations and growth in premarital relations. (Doctoral dissertation, Andrews University, 1993). *Dissertation Abstracts International*, *54*, 2750A.

*Bryan, A. A. M. (1995). Effect of community based intervention on relationship quality in expectant parent couples. (Doctoral dissertation, University of Minnesota, 1995). *Dissertation Abstracts International*, *56*, 3689B.

#Bryant, T. A. (1983). Marriage Enrichment: An empirical assessment of group-oriented, couple-oriented, retreat, and non-retreat program variables for early marriages. (Doctoral dissertation, Purdue University, 1983). *Dissertation Abstracts International*, *44*, 3924B.

Burleson, B. R., & Denton, W. H. (1997). The relationship between communication skill and marital satisfaction: Some moderating effects. *Journal of Marriage and the Family*, *59*, 4, 884–902.

Burleson, B. R. (2003). Emotional skill support. In Brant R. Burleson and John O. Greene (Ed.s) *Handbook of Communication and Social Interaction Skills* (pp. 551–594). Mahwah NJ: Lawrence Erlbaum.

*Burnham, R. A. (1984). Effects of the Couple Communication Program on marital and family communication of high and low socioeconomic status couples (Doctoral dissertation, University of Notre Dame, 1984). *Dissertation Abstracts International*, *45*, 1006B.

*Busby, D., Ivie, D., Harris, S., Ates, C. (in press). Self-directed, therapist-directed, and assessment-based interventions for premarital couples. *Family Relations*.

*Busick, C. A. (1982). The effects of communication training on marital communication, marital satisfaction and self-concept. (Doctoral dissertation, Texas A & M University, 1982). *Dissertation Abstracts International*, *43*(3-A), 725. (UMI No. 8219094).

Butler, M. H., & Wampler, K. S. (1999). A meta-analytic update of research on the Couple Communication program. *The American Journal of Family Therapy*, *27*, 223–237.

Canary, D. J. (2003). Managing interpersonal conflict: A model of events related to strategic choices. In Brant R. Burleson and John O. Greene (Ed.s) *Handbook of Communication and Social Interaction Skills* (pp. 515–549). Mahwah, NJ: Lawrence Erlbaum.

*Carpenter, K. M. (1995) Prevention of the decline of marital satisfaction during the transition to parenthood: A pilot test of marital skills training workshop (Master's

thesis, University of Nevada, Las Vegas, 1995). *Masters Abstracts International*, *34*, 878.

*Carpenter, M. A. (1989). The effectiveness of a self-help instructional package on communication skills and marital satisfaction (Doctoral dissertation, United States International University, 1989). *Dissertation Abstracts International*, *50*, 2607B.

Carroll, J. S. & Doherty, W. J. (2003). Evaluating the effectiveness of premarital prevention programs: A meta-analytic review of outcome research. *Family Relations*, *52*, 105–118.

*Carson, J. W., Carson, K. M., Gil, K. M., & Baucom, D. H. (2004). Mindfulness-based relationship enhancement. *Behavioral Therapy*, *35*, 471–494.

Cartensen, L., Gottman, J., & Levenson, R. (1995). Emotional behavior in long-term marriage. *Psychology and Aging*, *10*, 140–149.

#Cavedo, L. C. (1995). Efficacy of an extremely brief relationship enhancement intervention format and two coaching styles (Doctoral dissertation, The Pennsylvania State University, 1995). *Dissertation Abstracts International*, *56*, 5162B.

*Chambers, F. A. (1986). A comparison of the effects of the Couple Communication II Program and a family of origin workshop on marital satisfaction and individual autonomy (Doctoral dissertation, The College of William and Mary, 1986). *Dissertation Abstracts International*, *47*, 3311A.

*Cina, A., Widmer, K., & Bodenmann, G. (2002). Die Wirksamkeit des Freiburger Stresspräventionstrainings (FSPT): Ein Vergleich von zwei Trainingsvarianten. *Verhaltenstherapie*, *12*, 36–45.

*Cleaver, G. (1987). Marriage enrichment by means of a structured communication programme. *Family Relations*, *36*, 49–54.

*Coffield, J. V. (1986). A study of Hispanic marriage encounter groups. (Doctoral dissertation, United States International University, 1986). *Dissertation Abstracts International*, *47*, 1484A.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

*Combs, C. W. (1994). The effect of cognitive-behavioral marriage enrichment on marital adjustment among church couples (Doctoral dissertation, George Fox College, 1994). *Dissertation Abstracts International*, *55*, 1170B.

*Cooper, A., & Stoltenberg, C. D. (1987). Comparison of a sexual enhancement and a communication training program on sexual and marital satisfaction. *Journal of Counseling Psychology*, *34*(3), 309–314.

*Cottle, L. T. (1987). Effects of training conditions upon married couples' empathic ability, perception of spouse's empathy, marital intimacy, and marital satisfaction. (Doctoral dissertation, Brigham Young University, 1987). *Dissertation Abstracts International*, *49*, 746A.

*Coutta, E. R. (2001). An investigation into the significance of an acceptance-based marital enrichment group on couple intimacy and acceptance (Doctoral dissertation, New Orleans Baptist Theological Seminary, 2001). *Dissertation Abstract International*, *62*, 5958.

*Cullen, H. F. (1985). The effects of participation in marriage encounter on marital communication and marital satisfaction (Doctoral dissertation, Temple University, 1985). *Dissertation Abstracts International*, *46*, 2866B.

*Davis, G. M. (1979). The differential effect of married couple communication training in groups with the spouse present and spouse not present (Doctoral dissertation, The University of North Carolina, 1979). *Dissertation Abstracts International*, *40*, 4023.

*Davis, M. W. (1995). An experimental study of the "Growing Together" marriage preparation program (Doctoral dissertation, Purdue University, 1995). *Dissertation Abstracts International*, *56*, 2563A.

*Delaney, J. E. II. (1993). The effects of participation in a marital preparation program on couple compatibility (Doctoral dissertation, The University of Toledo, 1993). *Dissertation Abstracts International*, *55*, 6701B.

#Delong, C. C. (1993). The impact and perceived benefit of a communication skills-focused marital enrichment program (Relationship Enhancement) on couple types (Doctoral dissertation, The Pennsylvania State University, 1993). *Dissertation Abstracts International*, *54*, 4304A.

*Dillard, C. K. (1981). Marriage enrichment: A critical assessment of the couples communication program model (Doctoral dissertation, Virginia Polytechnic Institute and State University, 1981). *Dissertation Abstracts International*, *42*, 2882.

Dindia, K. & Timmerman, L. (2003). Accomplishing romantic relationships. In Brant R. Burleson and John O. Greene (Ed.s) *Handbook of Communication and Social Interaction Skills* (pp. 685–721). Mahwah, NJ: Lawrence Erlbaum.

Dion, M. R., & Hawkins, A. J. (2003). Federal policy efforts to improve outcomes among disadvantaged families by supporting marriage and family stability. In D. Russell Crane & Tim B. Heaton (Eds.) *Handbook of families and poverty.* Thousand Oaks, CA: Sage.

*Dode, I. L. (1979). An evaluation of the Minnesota Couples Communication Program: A structured educational enrichment experience (Doctoral dissertation, Arizona State University, 1979). *Dissertation Abstracts International*, *40*, 1211A. (UMI No. 79-20, 500).

Doherty, W. J. (1995). Boundaries between parent and family education and family therapy: The levels of family involvement model. *Family Relations*, *44*, 353–358.

Driver, J. L. & Gottman, J. M. (2004). Daily marital interactions and positive affect during marital conflict among newlywed couples. *Family Process*, *43*, 301–314.

*Duffey, T. H., Wooten, H. R., Lumadue, C. A., & Comstock, D. C. (2004). The effects of dream sharing on marital intimacy and satisfaction. *Journal of Couple & Relationship Therapy*, *3*(1), 53–68.

*Duncan, S. F., Steed, A., & Martino, C. (2006) *Comparing web-based and traditional family life education on outcomes for marriage*. Unpublished manuscript, Brigham Young University.

+Durana, C. (1997). Enhancing marital intimacy through psychoeducation: The PAIRS program. *The Family Journal: Counseling and Therapy for Couples and Families*, *5*(3), 204–215.

*Durana, C. (1996). Bonding and emotional reeducation of couples in the PAIRS training: Part II. *The American Journal of Family Therapy*, *24*(4), 315–328.

*Durana, C. (1996). A longitudinal evaluation of the effectiveness of the PAIRS psychoeducational program for couples. *Family Therapy*, *23*(1), 11–36.

*Dyer, P., & Kotrla, K. (2006). *Evaluation of Active Communication: An Active Relationships program*. Waco, Texas: Baylor University School of Social Work.

Dyer, P. M., & Dyer, G. H. (1999). Marriage enrichment, A.C.M.E.-style. In R. Berger & M. T. Hannah (Eds), *Preventative Approaches in Couples Therapy* (pp.28–54). Philadelphia, PA: Brunner/Mazel.

Dyer, P., & Dyer, G. (1990). *Growing Together*. Minneapolis: PREPARE/ENRICH.

*Dyer, P., & Kotrla, K. (2006). *Evaluation of Active Military Life Skills: An Active Relationships program*. Waco, Texas: Baylor University School of Social Work.

*Farris, D. W., & Avery, A. W. (1980). Training marital couples in problem-solving skills: An evaluation of a weekend training format. *Family Therapy*, *7*(2), 83–96.

#Fleming, M. J. (1977). An evaluation of a structured program designed to teach communication skills and concepts to couples: A field study (Doctoral dissertation, Florida State University, 1976). *Dissertation Abstracts International*, *37*, 7633A-7634A. (UMI No. 77-13, 315).

*Floyd, F. J. (1988). Couples' cognitive/affective reactions to communication behaviors. *Journal of Marriage and the Family*, *50*, 523–532.

Floyd, F. J., O'Farrell, T. J., Goldberg, M. (1987). Comparison of marital observational measures: The Marital Interaction Coding System and the Communication Skills Test. *Journal of Consulting and Clinical Psychology*, *55*, 423–429.

Fowers, B. J. (2000). *Beyond the myth of marital happiness.* San Francisco: Jossey-Bass.

Fowers, B., & Olson, D. (1989). ENRICH marital inventory: A discriminate validity and cross-validation assessment. *Journal of Marital and Family Therapy*, *15*, 65–79.

#Gardner, S. P. (2001). Evaluation of the "Connections: Relationships and Marriage" curriculum. *Journal of Family and Consumer Sciences Education*, *19*, 1–14.

*Gardner, S. P., Boellaard, R. (2006, November). *Does youth relationship education work after high school? A longitudinal study*. Poster presented at the National Council on Family Relations, Minneapolis, Minnesota.

*Gardner, S. P., Giese, K., & Parrot S. M. (2004). Evaluation of the Connections: Relationships and Marriage curriculum. *Family Relations*, *53*(5), 521–527.

Giblin, P., Sprenkle, D. H., & Sheehan, R. (1985). Enrichment outcome research: A meta-analysis of premarital, marital and family interventions. *Journal of Marital and Family Therapy*, *11*(3), 257–271.

Gottman, J. M. (1993). A theory of marital dissolution and stability. *Journal of Family Psychology*, *7*, 57–75.

Gottman, J. (1994). *Why marriages succeed or fail*. New York: Simon & Schuster.

Gottman, J. M., Coan, J., Carrerre, S., & Swanson, C. (1998). Predicting marital happiness and stability from newlywed interactions. *Journal of Marriage and the Family*, *60*, 5–22.

Gottman, J. M., & Driver, J. L. (2005). Dysfunctional marital conflict and everyday marital interaction. *Journal of Divorce and Remarriage*, *43*, 63–77.

Gottman, J., Ryan, K., Swanson, C., & Swanson, K. (2005). Proximal change experiments with couples: A methodology for empirically building a science of effective interventions for changing couples' interaction. *The Journal of Family Communication*, *5*, 163–190.

#Gottman, J. M., & Shapiro, A. F. (2004). Bringing Baby Home: A workshop for new and expectant parents. *International Journal of Childbirth Education*, *19*(3), 28–30.

Gottman, J. M. & Silver, N. (1999). *The seven principles for making marriage work*. NY: Crown.

*Greene, G. J. (1985-1986). The effect of the Relationship Enhancement Program on marital communication and self-esteem. *The Journal of Applied Social Sciences*, *10*(1), 78–94.

*Griffin, J. M., Jr., & Apostal, R. A. (1993). The influence of relationship enhancement training on differentiation of self. *Journal of Marital and Family Therapy*, *19*(3), 267–272.

Guerney, B. G. (1977). *Relationship Enhancement: Skill Training Programs for Therapy, Problem Prevention and Enrichment*. San Francisco: Jossey-Bass.

*Hahlweg, K., Markman, H. J., Thurmaier, F., Engl, J., & Eckert, V. (1998). Prevention of marital distress: Results of a German prospective longitudinal study. *Journal of Family Psychology*, *12*(4), 543–556.

Hahlweg, K., Reisner, L., Kohli, G., Vollmer, M., Schindler, L., & Revenstorf, D. (1984). Development and validity of a new system to analyze interpersonal communication: Kategoriensystem fuer partnerschaftliche Interaktion KPI. In K. Hahlweg & N. S. Jacobson (Eds.), *Marital interaction: Analysis and modification* (pp. 182–198). New York: Guilford Press.

*Halford, K. W., Moore, E., Wilson, K. L., Farrugia, C., & Dyer, C. (2004). Benefits of flexible delivery relationship education: An evaluation of the Couple CARE Program. *Family Relations*, *53*, 469–476.

*Halford, W. K., Sanders, M. R., & Behrens, B. C. (2001). Can skills training prevent relationship problems in at-risk couples? Four-year effects of a behavioral relationship education program. *Journal of Family Psychology*, *15*(4), 750–768.

*Hammonds, T. M. & Worthington, E. L. (1985). The effect of facilitator utterances on participant responses in a brief ACME-type marriage enrichment group. *The American Journal of Family Therapy*, *1*3, 39–49.

*Hardwick, J. B. (2005). *CREDO marriage enrichment retreat: Measuring program efficiency for the Canadian forces chaplaincy*. (Doctoral dissertation, Regent University, 2005). *Dissertation Abstracts International*, *66*, 1809–2030.

*Harrington, C. M. (1998). A comparative evaluation of the effectiveness of two marriage preparation programs: A look at the importance of communication skill training. (Doctoral dissertation, Lehigh University, 1998). *Dissertation Abstracts International*, *60*, 366.

Hawkins, A. J., Blanchard, V. L., Fawcett, E. B., & Jenkins, J. (May, 2006). Is marriage and relationship education effective? A comprehensive meta-analysis. Poster

presented at Annual Meeting of Society for Prevention Research, Washington, D.C.

Hawkins, A. J., Carroll, J. S., Doherty, W. J., & Willoughby, B. (2004). A comprehensive framework for marriage education. *Family Relations*, *53*, 547–558.

*Hawkins, A. J., Fawcett, E. B., Carroll, J. S., & Gilliland, T. T. (2006). The Marriage Moments program for couples transitioning to parenthood: Divergent conclusions from formative and outcome evaluation data. *Journal of Family Psychology*, *20*, 561–570.

*Hawkins, A. J., Roberts, T-. A., Christiansen, S. L., & Marshall, C. M. (1994). An evaluation of a program to help dual-earner couples share the second shift. *Family Relations*, *43*, 213–220.

*Hawley, D. R., & Olson, D. H. (1995). Enriching newlyweds: An evaluation of three enrichment programs. *The American Journal of Family Therapy*, *23*(2), 129–147.

Hedges, L. V. (1981). Distribution theory for Glasser's estimator of effect size and related estimators. *Journal of Educational Statistics, 6,* 107–128.

#Heitland, W. (1986). An experimental communication program for premarital dating couples. *The School Counselor*, *34*(1), 57–61.

Heyman, R. E. (2001). Observation of couple conflicts: Clinical assessment applications, stubborn truths, and shaky foundations. *Psychological Assessment*, *13*, 5–35.

Heyman, R. E., Eddy, J. M., Weiss, R. L., & Vivian, D. (1995). Factor Analysis of the Marital Interaction Coding System (MICS). *Journal of Family Psychology*, *9*, 209–215.

*Hickmon, W. A., Jr. (1994). Analysis of an adventure-based marriage enrichment program. (Doctoral dissertation, Virginia Polytechnic Institute and State University, 1992). *Dissertation Abstracts International*, *54*, 4038A.

Hight, T. L. (2000). Do the rich get richer? A meta-analysis of the methodological and substantive moderators of couple enrichment, Virginia Commonwealth University, 2000). *Dissertation Abstracts International, 61*, 3278B.

Hill, W. F. (1965). *HIM: Hill Interaction Matrix*. University of Southern California: Pomona, CA.

Hill, W. F. (1977). 'Hill Interaction Matrix (HIM): The conceptual framework, derived rating scales, and an updated bibliography.' *Small Group Behavior*, *8*, 132–138.

*Hollis, K. A. (2004). Examining the impact of a psycho-spiritual educational model of marriage enrichment on seminary couples: A pilot study (Doctoral dissertation, The Southern Baptist Theological Seminary, 2004). *Dissertation Abstracts International*, *65*, 181.

*Hoskins, J. T. (1984). A comparison of skill-enhancement interventions with step-parenting couples (Doctoral dissertation, University of Oregon, 1984). *Dissertation Abstracts International*, *45*, 3549A.

Hops, H., Wills, T. A., Patterson, G. R., & Weiss, R. L. (1972). Marital interaction coding system. Eugene: University of Oregon Research Institute.

*Huber, J. W. (1978). The effects of dialogue communication upon the interpersonal marital relationship (Doctoral dissertation, California School of Professional Psychology, 1978). *Dissertation Abstracts International*, *38*, 3883B.

Institute for American Values (2005). *Why Marriage Matters, Second Edition: Twenty-Six Conclusions from the Social Sciences*. New York, NY.

*Jensen, M. R., Brady, L. G., & Burr, W. R. (1979). The effects of student practice on several types of learning in a functional marriage course. *The Family Coordinator*, *28*, 217–227.

*Jessee, R. E., & Guerney, B. G., Jr. (1981). A comparison of Gestalt and Relationship Enhancement treatments with married couples. *The American Journal of Family Therapy*, *9*(3), 31–41.

*Joanning, H. (1982). The long-term effects of the Couple Communication Program. *Journal of Marital and Family Therapy*, *8*(4), 463–468.

Joanning, H., Koval, J. & Brewster, J. (1982). *Development of a rapid measure of assessing dyadic communication*. Technical-Report, Family Resource Center, Texas Tech University.

*Kaiser, A., Hahlweg, K., Fehm-Wolfsdorf, G., & Groth, T. (1999). Indizierte Prävention bei Beziehungsstörungen—Evaluation eines psychoedukativen Kompakt-programmes für Paare [Indicated prevention for longer married couples: Efficacy of a compact group program (German)]. *Verhaltenstherapie*, *9*, 76–85.

*Kaiser, A., Hahlweg, K., Fehm-Wolfsdorf, G., & Groth, T. (1998). The efficacy of a compact psychoeducational group training program for married couples. *Journal of Consulting and Clinical Psychology*, *66*(5), 753–760.

Kelly, A. B., Fincham, F. D., Beach, S. R. H. (2003). Communication skills in couples: A review and discussion of emerging perspectives. Handbook of Communication

and Social Interaction Skills, John O. Green and Brant R. Burleson Ed.s). Mahwah, New Jersey: Lawrence Erlbaum, 723–751.

*Kemper, S. D. (2004). The impact of a community marital enrichment program: Today's marriage. (Doctoral dissertation, Regent University, 2004). *Dissertation Abstracts International*, *65*, 1550–1665.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. NY: Guilford Press.

*Kermeen, P. (1995). Improving postpartum marital relationships. *Psychological Reports*, *76*, 831–834.

Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin*, *127*(4), 472–503.

#Kilmann, P. R., Julian, A., III, & Moreault, D. (1978). The impact of a marriage enrichment program on relationship factors. *Journal of Sex and Marital Therapy*, *4*(4), 298–303.

#Kim, K. Y. (2000). A program of marriage enrichment for Korean/American couples (Doctoral dissertation, Oral Roberts University, 2000). *Dissertation Abstracts International*, *61*, 4034A.

*Kirby, J. S. (2005). A study of the marital satisfaction levels of participants in a marriage education course. (Doctoral Dissertation, University of Louisiana at Monroe, 2005). *Dissertation Abstracts International*, A-66/04, 1513. (UMI No. AAT 3170727).

Lane, M. T. (1993). An evaluation of a self-instructional marital enrichment training program. (Doctoral dissertation, McGill University (Canada), 1993). Dissertation Abstracts International*, *55*, 1531A.

*Larson, J. H., Vatter, R. S., Galbraith, R. C., Holman, T. B., & Stahmann, R. F. (in press). The RELATionship Evaluation (RELATE) with therapist-assisted interpretation: Short-term effects on premarital relationships. *Journal of Marital and Family Therapy*.

Larson, J. H. (2004). Innovation in marriage education: Introduction and challenges. *Family Relations*, *53*, 421–424.

*Larson, K. B. (1976). The effects of communication training in small groups upon self-disclosure, marital adjustment, and emotional attachment in marriage (Doctoral dissertation, The University of Utah, 1976). *Dissertation Abstracts International*, *37*, 5328B.

Laurenceau, J. P., Stanley, S. M., Olmos-Gallo, A., Baucom, B. & Markman, H. J. (2004). Community-based prevention of marital dysfunction: Multilevel modeling of a randomized effectiveness study. *Journal of Consulting and Clinical Psychology*, *72*, 933–943.

*LeCroy, C.W., Carrol, P., Nelson-Becker, H., & Sturlaugson, P. (1989). An experimental evaluation of the Caring Days technique for marital enrichment. *Family Relations*, *38*, 15–18.

Lipsey, M. W., & Wilson, D. B. (1993). The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. *American Psychologist, 48,* 1181–1209.

Lipsey, M. W. & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage Publications.

*Litty, C. L. E. (1988). An investigation of the effects of an Adlerian group couple education program on premarital adjustment (Doctoral dissertation, University of Oregon, 1988). *Dissertation Abstracts International*, *49*, 2541A.

*Long, E. C. J. (2000). [A longitudinal assessment of an empathy training program for couples in romantic relationships]. Unpublished raw data.

#Long, E. C. J., Angera, J. J., Carter, S. J., Nakamoto, M., & Kalso, M. (1999). Understanding the one you love: A longitudinal assessment of an empathy training program for couples in romantic relationships. *Family Relations*, *48*(3), 235–242.

*Lovejoy, K. A. R. (2004). *Marriage Moments: An evaluation of an approach to strengthen couples' relationships during the transition to parenthood in the context of a home visitation program*. Unpublished master's thesis, Brigham Young University.

Mace, D. R., & Mace, V. (1976). Marriage enrichment—a preventive group approach for couples. In D. H. L Olsen (Ed.), *Treating relationships*. Lake Mills, Iowa: Graphic.

Markman, H. J. (1981). The prediction of marital distress: A five year follow-up. *Journal of Consulting and Clinical Psychology*, *49*, 760–762.

+Markman, H. J., Duncan, S. W., Storaasli, R. D., & Howes, P. W. (1987). The prediction and prevention of marital distress: A longitudinal investigation. In K. Hahlweg & M. Goldstein (Eds), *Understanding Major Mental Disorder: The*

Contribution of Family Interaction Research. New York, NY: Family Process Inc.

*Markman, H. J., Floyd, F. J., Stanley, S. M., & Storaasli, R. D. (1988). Prevention of marital distress: A longitudinal investigation. *Journal of Consulting and Clinical Psychology*, *56*(2), 210–217.

+Markman, H. J., & Hahlweg, K. (1993). The prediction and prevention of marital distress: An international perspective. *Clinical Psychology Review*, *13*, 29–43.

+Markman, H. J., Renick, M. J., Floyd, F. J., Stanley, S. M., & Clements, M. (1993). Preventing marital distress through communication and conflict management training: A 4- and 5-year follow-up. *Journal of Consulting and Clinical Psychology*, *61*(1), 70–77.

*Mason, M. J. (1980). *Relationship enrichment: Evaluating the effects of a couples wilderness program*. (Doctoral Dissertation, University of Minnesota, 1980). *Dissertation Abstracts International*, *42*(1-B), 161. (UMI No. AAT 8109468).

#Mattson, D. L., & Christensen, O. J., & England, J. T. (1990). The effectiveness of a specific marital enrichment program: TIME. *Individual Psychology*, *46*(1), 88–92.

#McCaghy, P. A. (2004). *Exploring how participant factors may influence assessment outcomes in marriage enrichment*. (Doctoral dissertation, Regent University, 2004). *Dissertation Abstracts International*, *65*, 5461–5644.

*Meadors, R. E. (1989). Marriage enrichment: An emerging specialty of prevention in the field of marital counseling (Doctoral dissertation, Southern Illinois University at Carbondale, 1989). *Dissertation Abstracts International*, *51*, 2270A.

*Meadors, W. K. (1994). The effects of a partially structured marriage enrichment weekend program on couples' perception of marital communication and adjustment changes (Doctoral dissertation, Memphis State University, 1994). *Dissertation Abstracts International*, *55*, 1192A.

*Midmer, D., Wilson, L., & Cummings, S. (1995). A randomized, controlled trial of the influence of prenatal parenting education on postpartum anxiety and marital adjustment. *Family Medicine*, *27*(3), 200–205.

Miller, S. L., Nunnally, E. W., & Wackman, D. B. (1976). Minnesota Couples Communication Program (MCCP): Premarital and Marital groups. In D. H. L. Olson (Ed.), Treating relationships (pp. 21–39). Lake Mills, IA: Graphic.

Miller, S., Wackman, D. B., & Nunnally, E. W. (1983). Couple Communication: Equipping couples to be their own best problem solvers. *The Counseling Psychologist*, *11*, 73–77.

*Milholland, T. A., & Avery, A. W. (1982). Effects of Marriage Encounter on self-disclosure, trust and marital satisfaction. *Journal of Marital and Family Therapy*, *8*(2), 87–89.

*Moitinho, E. S. L. (2000). *The effects of marriage enrichment conferences on marital satisfaction of English-speaking Hispanic married couples*. (Doctoral dissertation, Southwestern Baptist Theological Seminary, 2000). *Dissertation Abstracts International*, *61*, 2213–2341.

*Most, R., & Guerney, B., Jr. (1983). An empirical evaluation of the training of lay volunteer leaders for Premarital Relationship Enhancement. *Family Relations*, *32*, 239–251.

*Nathan, E. P., & Joanning, H. H. (1985). Enhancing marital sexuality: An evaluation of a program for the sexual enrichment of normal couples. *Journal of Sex & Marital Therapy*, *11*(3), 157–164.

Navran, L. (1967). Communication and adjustment in marriage. *Family Process*, *6*, 173–184.

#Nickols, S. A., Fournier, D. G., & Nickols, S. Y. (1986). Evaluation of a preparation for marriage workshop. *Family Relations*, *35*, 563–571.

Noller, P. (1993). Gender and emotional communication in marriage: Different cultures or differential powers? *Journal of Language and Social Psychology*, *12*, 132–152.

*Noval, L. S., Combs, C. W., Wiinamaki, M., Bufford, R. K., & Halter, L. (1996). Cognitive-behavioral marital enrichment among church and non-church groups: Preliminary findings. *Journal of Psychology and Theology*, *24*(1), 47–53.

*Odegard, M. M. (1983). The efficacy of a proactive marital enrichment program for dual-career couples (Doctoral dissertation, New Mexico State University, 1983). *Dissertation Abstracts International*, *44*, 1736A.

*Oxford, M. C. (2003). Success: Satisfying unions through couples communication and enhancement skills: A secondary prevention and enhancement program for married couples (Doctoral dissertation, Texas A&M University, 2003). *Dissertation Abstracts International*, *64*, 4629B.

*Parish, E.(1992). A quasi-experimental evaluation of the Premarital Assessment Program for premarital counseling. *Family Therapy*, *13*, 33–36.

*Perlow, S. P. (1985). An evaluation of a weaning procedure in increasing the maintenance of a couple communication training program (Doctoral dissertation, De Paul University, 1985). *Dissertation Abstracts International*, *46*, 3604A.

Pasch, L. A., & Bradbury, T. N. (1998). Social support, conflict, and the development of marital dysfunction. *Journal of Consulting and Clinical Psychology*, *66*, 219–230.

+Petch, J. F. (2006). The Couple CARE for Parents Program: Enhancing Couple Relationships across the transition to parenthood. Unpublished doctoral dissertation, Griffith University.

*Petch, J. F., Halford, W. K., & Creedy, D. (2006). Promoting a positive transition to parenthood: A randomized controlled trial of the Couple Care for Parents program Unpublished manuscript, Griffith University.

+Pihet, S., Bodenmann, G., Cina, A., Widmer, K., & Shantinath, S. (in press) Can prevention of marital distress improve well-being? Results of a 1-year longitudinal study. *Clinical Psychology and Psychotherapy*.

*Pretorius, H. G., van Wyk, J. D., & Scheppers, J. M. (1992). Die evaluering van 'n huweliksvoorbereidingsprogram [The evaluation of a marital preparation program (Afrikaans)]. *South African Journal of Psychology*, *22*(3), 140–146.

*Ramsay, A. J. (1989). Marriage enrichment: The use of computers to teach communication skills (Doctoral dissertation, University of North Texas, 1989). *Dissertation Abstracts International*, *50*, 2390A.

Raudenbush, S. W., Becker, B. J., & Kalaian, H. (1998). Modeling multivariate effect sizes. *Psychological Bulletin*, *1*, 111–120.

Reardon-Anderson, J., Stagner, M., Macomber, J. E., & Murray, J. (2005). *Systematic review of the impact of marriage and relationship programs*. WADC: Urban Institute. Retrieved February 5, 2006, from http://www.urban.org/url.cfm?ID=411142

*Reissman, C., Aron, A., & Bergen, M. R. (1993). Shared activities and marital satisfaction: Causal direction and self-expansion versus boredom. *Journal of Social and Personal Relationships*, *10*, 243–254.

Renick, M. J., Blumberg, S. L., & Markman, H. J. (1992). The Prevention and Relationship Enhancement Program (PREP): An empirically based preventive intervention program for couples. *Family Relations*, *41*, 141–147.

*Ridley, C. A., Avery, A. W., Harrell, J. E., Haynes-Clements, L. A., & McCunney, N. (1981). Mutual problem-solving skills training for premarital couples: A six-month follow-up. *Journal of Applied Developmental Psychology*, *2*(2), 179–188.

+Ridley, C. A., Avery, A. W., Harrell, J. E., Leslie, L. A., & Dent, J. (1981). Conflict management: A premarital training program in mutual problem solving. American Journal of Family Therapy, 9 (4), 23–32.

*Ridley, C. A., & Bain, A. B. (1983). The effects of a premarital relationship enhancement program on self-disclosure. *Family Therapy*, *10*(1), 13–24.

*Ridley, C. A., Jorgensen, S. R., Morgan, A. G., & Avery A. W. (1982). Relationship enhancement with premarital couples: An assessment of effects on relationship quality. *The American Journal of Family Therapy*, *10*(3), 41–48.

*Ridley, C. A., & Nelson, R. R. (1984). The behavioral effects of training premarital couples in mutual problem solving skills. *Journal of Social and Personal Relationships*, *1*, 197–210.

#Ridley, C. A., & Sladeczek, I. E. (1992). Premarital relationship enhancement: Its effects on needs to relate to others. *Family Relations*, *41*, 148–153.

*Ripley, J. S., & Worthington, E. L., Jr. (2002). Hope-focused and forgiveness-based group interventions to promote marital enrichment. *Journal of Counseling & Development*, *80*, 452–463.

Rosenthal, R. & Rubin, D. B. (1982). A simple, general purpose display of magnitude of experimental effect. *Journal of Educational Psycholo*gy, *74*(20), 166–169.

#Ross, J. H. (1977). The development and evaluation of a group pre-marital counseling workshop (Doctoral dissertation, University of Northern Colorado, 1977). *Dissertation Abstracts International*, *38*, 6544A.

#Rupel, L. W. (1983). The relationship of location to the Effectiveness of marriage enrichment retreats and workshops (Doctoral dissertation, University of the Pacific, 1983). *Dissertation Abstracts International*, *44*, 1737A.

*Russell, C. S., Bagarozzi, D. A., Atilano, R. B., & Morris, J. E. (1984). A comparison of two approaches to marital enrichment and conjugal skills training: Minnesota Couples Communication Program and Structured Behavioral Exchange contracting. *The American Journal of Family Therapy*, *12*(3), 13–25.

*Ryan, K. D. & Gottman, J. M. (under review). Psycho-educational intervention with moderately and severely distressed married couples—1-year follow up results. *Journal of Marital and Family Therapy*.

*Sager, D. E., & Sager, W. G. (2005). SANCTUS Marriage Enrichment. *The Family Journal: Counseling and Therapy for Couples and Families*, *13*(2), 212–218.

*Saiz, C. C. (2001). Teaching couples communication and problem-solving skills: A self-directed, videotaped version of the prevention relationship enhancement program (PREP) (Doctoral dissertation, University of Denver, 2001). *Dissertation Abstracts International*, *62*, 2076B.

*Samko, M. R. (1976). Self-disclosure and marital communication as a function of participation in a marriage workshop and the subsequent use of a communication technique (Doctoral dissertation, California School of Professional Psychology, 1976). *Dissertation Abstracts International*, *38*, 4478B.

*Sams, W. P. (1983). *Marriage preparation: An experimental comparison of the Premarital Relationship Enhancement (PRE) and the Engaged Encounter (EE) programs*. (Doctoral Dissertation, The Pennsylvania State University, 1983). *Dissertation Abstracts International*, *44*, 3207–3477.

*Schaffer, M. (1980). An evaluation of the Minnesota Couple Communication program upon communication of married couples (Doctoral dissertation, University of Southern Mississippi, 1980). *Dissertation Abstracts International*, *41*, 4643B.

*Schilling, E. A., Baucom, D. H., Burnett, C. K., Allen, E. S., & Ragland, L. (2003). Altering the course of marriage: The effect of PREP communication skills acquisition on couples' risk of becoming maritally distressed. *Journal of Family Psychology*, *17*, 41–53.

*Schollenberger, M. A. (2001). Increasing marital adjustment in graduate students and their spouses through Relationship Enhancement (Doctoral dissertation, Virginia

Polytechnic Institute and State University, 2001). *Dissertation Abstracts International*, *64*, 75A.

*Schulz, M. S., Cowan, C. P., & Cowan, P. A. (2006). Promoting healthy beginnings: A randomized controlled trial of a preventive intervention to preserve marital quality during the transition to parenthood. *Journal of Consulting and Clinical Psychology*, *74*, 20–31.

*Schwartz, R. C. (1980). The relationship among communication style, self esteem, and the Couple Communication Program (Doctoral dissertation, Purdue University, 1980). *Dissertation Abstracts International*, *41*, 3198.

Shadish, W. R., & Baldwin, S. A. (2003). Meta-analysis of MFT interventions. *Journal of* Shadish, W. R., & Ragsdale, K. (1996). Random versus nonrandom assignment in controlled experiments: Do you get the same answer? *Journal of Consulting and Clinical Psychology, 64,* 1290-1305. *Marital and Family Therapy*, *29*, 547–570.

Shadish, W. R., & Ragsdale, K. (1996). Randomized versus quasi-experimentla designs: A meta-analysis investigating the relationship between random assignment and effect size. *Journal of Consulting and Clinical Psychology*, *64*, 1290–1305.

*Shapiro, A. F., & Gottman, J. M. (2005). Effects on marriage of a psycho-communicative-educational intervention with couples undergoing the transition to parenthood, evaluation at 1-year post intervention. *Journal of Family Communication*, *5*, 1–24.

Spitzberg, B. H. (2003). Methods of interpersonal skill assessment. In J. O. Greene & B. R. Burleson (eds.), *Handbook of communication and social interaction skills* (pp. 93–134). Mahwah, New Jersey: Lawrence Erlbaum.

Spitzberg, B. H. (1989). Issues in developing a theory of interpersonal competence in the intercultural context. *International Journal of Intercultural Relations*, *1*3, 241–268.

SPSS for Windows, Rel. 12.01. (2003). Chicago: SPSS Inc.

*Stanley, S. M., Allen, E. S., Markman, H. J., Saiz, C. C., Bloomstrom, G., & Thomas, R. (2005). Dissemination and evaluation of marriage education in the army. *Family Process*, *44*(2), 187–201.

Stanley, S. M., Markman, H. J. & Blumberg, S. L. (1997). The Speaker/Listener Technique. *Family Journal: Counseling and Therapy for Couples and Families*, *5*, 82–83.

+Stanley, S. M., Markman, H. J., Prado, L. M., Olmos-Gallo, P. A., Tonelli, L., & St. Peters, M. (2001). Community-based premarital prevention: Clergy and lay leaders on the front lines. *Family Relations*, *50*(1), 67–76.

*Steller, J. B. (1979). The effects of Couples Communication training upon individualized goals, marriage adjustment, self disclosure, and the use of communication skills by married couples (Doctoral dissertation, University of Minnesota, 1979). *Dissertation Abstracts International*, *40*, 900B.

Stephen, T. (2001). Concept analysis of the communication literature on marriage and family. *The Journal of Family Communication*, *1*, 91–110.

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics Scales. *Journal of Marriage and the Family*, *41*, 75–88.

*Strickland, J. H. (1981). The effects of two marriage enrichment retreat models on marital satisfaction. (Doctoral Dissertation, Texas Tech University, 1981). *Dissertation Abstracts International, 42*(10-A): 4305.

*Thompson, K. B. (1978). The effectiveness of Couples Communication training on interpersonal orientation, couple communication, perceptual congruence, and verbal communication style: A field study (Doctoral dissertation, University of Iowa, 1978). *Dissertation Abstracts International*, *39*, 3009B.

#Thurmaier, F., Engl, J., & Hahlweg, K. (1998). Eheglück auf dauer? Methodik, Inhalte und Effektivität eines präventiven Paarkommunkationstrainings—Ergebnisse nach fünf Jhren [Marital Happiness Forever—Methods, Content and Efficacy of a Premarital Prevention Program—5 year results (German)]. *Zeitschrift Für Klinische Psychologie*, *28*(1), 54–62.

*Trathen, D. W. (1995). A comparison of the effectiveness of two Christian premarital counseling programs (skills and information based) utilized by evangelical protestant churches. (Doctoral dissertation, University of Denver, 1985). *Dissertation Abstracts Internationa*l, *56*, 2277A.

#Travis, R. P., & Travis, P. Y. (1975). The Pairing Enrichment Program: Actualizing the marriage. *The Family Coordinator*, *24*(2), 161–165.

Trower, P. (1984). A radical critique and reformulation: From organism to agent. In P. Trower (Ed.), *Radical approaches to social skills training* (pp. 48-88). London: Croom Helm.

*Turner, L. (1998). *The impact of a psychoeducational group intervention on marital discord, adult interaction style, projective identification, and perceptive*

identification. (Doctoral Dissertation, The Catholic University of America, 1998). *Dissertation Abstracts International*, *59*, 1337–1647.

*Valenti, F. T. (1989). Effects of the Couple Communication Program I on the marital adjustment, self-disclosure, and communication style of therapy and non-therapy participants. (Doctoral Dissertation, The University of North Carolina at Greensboro,1987). *Dissertation Abstracts International*, *49*, 1715A.

*van der Molen, H. T., Gramsbergen-Hoogland, Y., Wolters, F. J. M., & de Meijer, M. (1987). Effecten van een communicatie-cursus voor (echt) paren [Effects of a communication course for married couples (Dutch)]. *Tijdschrift Voor Psychotherapie*, *13*(3), 114–127.

*Van Widenfelt, B., Hosman, C., Schaap, C., & van der Staak, C. (1996). The prevention of relationship distress for couples at risk: A controlled evaluation with nine-month and two-year follow-ups. *Family Relations*, *45*, 156–165.

*Vijayalakshmi, O. P. (1997). Enriching marital communication and marital adjustment of couples from India living in the United States. (Doctoral dissertation, Oregon State University, 1997). *Dissertation Abstracts International*, *58*, 1605A.

*Wampler, K. S., & Sprenkle, D. H. (1980). The Minnesota Couple Communication Program: A follow-up study. *Journal of Marriage and the Family*, *42*(3), 577–584.

*Warner, M. D. (1981). Comparison of a religious marriage enrichment program with an established communication training enrichment program (Doctoral dissertation, Purdue University, 1981). *Dissertation Abstracts International*, *42*, 3774A.

Weigle, D. J. (2003). A communication approach to the construction of commitment in the early years of marriage: A qualitative study. *The Journal of Family Communication*, *3*, 1–19.

*Wendt, K. R. (1996). The relationship between participation in a personality type marital enrichment seminar and the reported marital quality of participants (Doctoral dissertation, Saint Louis University, 1996). *Dissertation Abstracts International*, *57*, 2884A.

+Widmer, K., Cina, A., Charvoz, L., Shantinath, S., & Bodenmann, G. (2005). A model dyadic-coping intervention. In Revenson, T. A., Kayser, K., & Bodenmann, G. (Ed.), *Couples coping with stress: Emerging perspectives on dyadic coping* (pp. 159–174). Washington, DC: American Psychological Association.

*Wilkinson, L. L. H. (1983). Consensus model training for couples: An outcome study of an integrated conflict management program for marriage enrichment. (Doctoral dissertation, University of Colorado at Boulder, 1983). *Dissertation Abstracts International*, *44*, 993A.

*Wilson, D. A. (1980). *The effects of a partially structured Christian marriage enrichment program upon marital communication, general marital adjustment, and purpose in life*. (Master's Thesis, North Texas State University, 1980). Dissertation Abstracts International, 41, 1506–1707.

Wilson, S. & Sabee, C. M. (2003). Explicating communicative competence as a theoretical term. In J. O. Greene & B. R. Burleson (eds.), *Handbook of communication and social interaction skills* (pp. 3–50). Mahwah, New Jersey: Lawrence Erlbaum.

*Witkin, S. L., Edleson, J. L., Rose, S. D., & Hall, J. A. (1983). Group training in marital communication: A comparative study. *Journal of Marriage and the Family*, *45*(3), 661–669.

*Wong, J. T. (2003). Evaluation of a church-based marriage preparation course: A preliminary study (Doctoral dissertation, Fuller Theological Seminary, 2003). *Dissertation Abstracts International*, *65*, 3735B.

*Worthington, E. L., Jr., Buston, B. G., & Hammonds, T. M. (1989). A component analysis of marriage enrichment: Information and treatment modality. *Journal of Counseling and Development*, *67*, 555–560.

*Wu, D. J. (1999). Developing and Implementing a Christian marriage enrichment program for Chinese immigrants. (Doctoral dissertation, Asbury Theological Seminary, 1999). *Dissertation Abstracts International*, *60*, 1785A.

#Wu, P. L. D. (2000). Analysis of the effects of Marriage Encounter as a form of family life education (Doctoral dissertation, The Claremont Graduate University, 2000). *Dissertation Abstracts International*, *61*, 3469A.

*Yarbrough, D. M. (1983). Effects of structured negotiation training on dyadic adjustment, satisfaction, and intimacy (Doctoral dissertation, University of Georgia, 1983). *Dissertation Abstracts International*, *44*, 2422A.

Appendix A: Effect Size Tables

Table 1. Descriptive information on MRE Programs.

	Experimental	**Quasi-Experimental**	**Total**
Target			
HS	0	3	3
Premarital	9	4	13
TTP	2	2	4
Enhancement	30	41	71
Intensity			
Low	15	4	19
Moderate	25	38	63
High	1	6	7
Setting			
Church	6	13	19
Therapy/University clinic	4	14	18
Health Care	1	0	1
HS/Univ. Class	0	4	4
Community	0	1	1
Other	1	2	3
Prob. Univ./Therapy	23	16	39
Home	6	0	6
Primary Content			
Communication	32	38	70
Expectations	5	10	15
Motivations/Virtues	4	1	5
Det. by Couple	0	1	1
Secondary Content			
Communication	8	7	15
Expectations	11	10	21
Motivations/Virtues	8	8	16
Det. by Couple	1	3	4
None	13	22	35

Note: Categories that do not total to 91 reflect instances in which studies did not report data on a given topic.

Table 2. MRE program frequency.

Program name	Frequency	Percent
Couples Communication (CC)	22	24%
Couples Coping Enhancement Training (CCET)	1	1%
Connections	2	2%
Couple Care	2	2%
Communication Skills Workshop (CSW)	1	1%
Family Enrichment Program	2	2%
Generic	31	34%
Gottman-based	4	4%
Growing Together	3	3%
Imago	1	1%
Love U2	1	1%
Marriage and Family Enrichment Course	1	1%
Marriage Encounter (ME)	3	3%
Mutual Problem-Solving Program (MPS)	1	1%
Practical Application of Intimate Relationship Skills (PAIRS)	1	1%
Prevention and Relationship Enhancement Sequence (PETS)	1	1%
Pre-Cana	1	1%
Prevention and Relationship Enhancement Program (PREP)	11	11%
Relationship Enhancement (RE)	1	1%
Training in Marriage Enrichment (TIME)	1	1%
Total	91	100%

Table 3. Undifferentiated communication results.

Outcome/Time	Experimental Studies				Quasi-experimental Studies				Design-group Difference
	k	*d*	Variance	95% CI	*k*	*d*	95% CI	Variance	*Q* (*df* = 1)
Undifferentiated Communication									
Post-test	37	.437**	.007	.274–.600	48	.230**	.087–.372	.005	*Q* = 3.51 (ns)
Follow-up	18	.428**	.020	.148–.708	29	.168#	-.056–.391	.013	*Q* = 2.04 (ns)
Post + Follow-up Studies:									
Post-test	13	.359*	.031	.012–.706	26	.323**	.079–.567	.015	*Q* = .03 (ns)
Follow-up	13	.293#	.032	-.060–.646	26	.212#	-.035–.459	.016	*Q* = .14 (ns)
Post→Follow-up	13	-.056#	.009	-.243–.132	26	-.086#	-.179–.024	.004	*Q* = .07 (ns)

Note: ns = non-significant; # = $p < .10$; * = $p < .05$; ** = $p < .01$; *** $p < .001$

Note: *Post + Follow-up studies* refers to those studies that included both an immediate post-assessment and a follow-up assessment.

Table 4. Published versus unpublished reports.

Outcome/Time	Experimental Studies			Quasi-experimental Studies		
	k	*d*	95% CI	*k*	*d*	95% CI
Post-test						
Published	14	.536***	.286–.786	15	.341**	.091–.591
Unpublished	23	.353***	.158–.547	33	.169#	-.007–.344
Design-group Difference *Q* (*df* = 1)	*Q* = 1.29(ns)			*Q* = 1.22(ns)		
Follow-up						
Published	10	.682***	.335–1.028	8	.272#	-.143–.687
Unpublished	8	.029#	-.393–.451	21	.120#	-.140–.381
Design-group Difference *Q* (*df* = 1)	*Q* = 5.48*			*Q* = .37(ns)		

Note: ns = non-significant; # = $p < .10$; * = $p < .05$; ** = $p < .01$; *** $p < .001$
Note: *Post + Follow-up studies* refers to those studies that included both an immediate post-assessment and a follow-up assessment.

Table 5. Self-report versus observational assessment results.

Outcome/Time	Experimental Studies			Quasi-experimental Studies		
	k	*d*	95% CI	*k*	*d*	95% CI
Post-test						
Self-report	25	.173#	-.008–.355	36	.057#	-.090–.205
Observed	19	.849***	.611–1.086	23	.651***	.442–.860
Design-group Difference *Q* (*df* = 1)	*Q* = 19.58***			*Q* = 20.69***		
Follow-up						
Self-report	12	.144#	-.136–.425	21	.046#	-.186–.279
Observed	8	.831***	.485–1.176	14	.433**	.116–.75
Design-group Difference *Q* (*df* = 1)	*Q* = 9.13**			*Q* = 3.71#		

Note: ns = non-significant; # = $p < .10$; * = $p < .05$; ** = $p < .01$; *** $p < .001$
Note: *Post + Follow-up studies* refers to those studies that included both an immediate post-assessment and a follow-up assessment.

Table 6. Results for couples, females, and males.

Outcome/Time	Experimental Studies			Quasi-experimental Studies		
	k	*d*	95% CI	*k*	*d*	95% CI
Post-test						
Couple	22	.612***	.417–.808	15	.454**	.129–.778
Female	15	.244*	.021–.468	11	.130#	-.220–.480
Male	15	.222#	-.002–.445	11	.111#	-.239–.462
Design-group Difference *Q* (*df* = 2)	*Q* = 8.76*			*Q* = 2.56(ns)		
Follow-up						
Couple	10	.461*	.047–.875	12	.400*	.024–.775
Female	8	.399#	-.034–.833	9	.054#	-.331–.438
Male	8	.378#	-.054–.811	9	.185#	-.198–.568
Design-group Difference *Q* (*d f* = 2)	*Q* = .08(ns)			*Q* = 1.63(ns)		

Note: ns = non-significant; # = $p < .10$; * = $p < .05$; ** = $p < .01$; *** $p < .001$
Note: *Post + Follow-up studies* refers to those studies that included both an immediate post-assessment and a follow-up assessment.

Table 7. Communication subconstructs results.

Outcome/Time	Experimental Studies			Quasi-experimental Studies		
	k	*d*	95% CI	*k*	*d*	95% CI
Post-test						
Con. Resolution	24	.564***	.340–.787	32	.298**	.108–.488
Communication	11	.442*	.075–.770	16	.092#	-.169–.354
Design-group Difference *Q* (*df* = 1)	*Q* = .45(ns)			*Q* = 1.56(ns)		
Follow-up						
Con. Resolution	11	.645***	.312–.979	20	.163#	-.111–.436
Communication	3	-.388#	-1.126–.350	7	.370#	-.068–.809
Design-group Difference *Q* (*df* = 1)	*Q* = 6.25*			*Q* = .62#		
Post-test						
Negative	12	.285*	.032–.537	20	.265*	.015–.514
Positive	29	.541***	.362–.720	37	.339***	.158–.519
Design-group Difference *Q* (*df* = 1)	*Q* = 2.63(ns)			*Q* = .22(ns)		
Follow-up						
Negative	6	.606**	.155–1.057	13	.164#	-.184–.512
Positive	13	.396*	.064–.727		.363••	.098–.629
Design-group Difference *Q* (*df* = 1)	*Q* = .54(ns)			*Q* = .80(ns)		
Post-test						
Neg. Con. Resolution	18	.284*	.059–.509	22	.301*	.066–.536
Pos. Con. Resolution	32	.540***	.361–.720	32	.422***	.227–.617
Pos. Communication	13	.424**	.141–.706	17	.097#	-.164–.357
Design-group Difference *Q* (*df* = 2)	*Q* = 3.06(ns)			*Q* = 3.84(ns)		
Follow-up						
Neg. Con. Resolution	9	.600***	.264–.936	15	.192(ns)	-.117–.502
Pos. Con. Resolution	14	.518***	.229–.807	17	.393**	-.098–.687
Pos. Communication	3	-.388(ns)	-1.094–.317	9	.312(ns)	-.077–.702
Design-group Difference *Q* (*df* = 2)	*Q* = 6.36*			*Q* = .85(ns)		

Note: ns = non-significant; # = $p < .10$; * = $p < .05$; ** = $p < .01$; *** $p < .001$
Note: *Post + Follow-up studies* refers to those studies that included both an immediate post-assessment and a follow-up assessment.

Appendix B: Codebook

Marriage Education Meta-Analysis

Study Inclusion/Exclusion Decisions

1. Is the study a report of a PROGRAM?
   - Marriage Education as part of the content, not just marital satisfaction as an outcome

   Measure
   - Must be an "arm's length" from therapeutic interventions in terms of content and delivery

2. Is the study an EVALUATION?
   - Is the design experimental or quasi-experimental?
   - Is this a unique sample?
     ***If it is a report of another study – put it in another pile
   - The study should NOT be a review, a survey or a repeat of a previous data

3. Was the study published after 1975?

4. Does the study use at least one the following outcome MEASURES:
   Marital Satisfaction, Communication

5. Are the RESULTS code-able?
   - Do the authors report an X, SD, and N; or X and F, T, or p values?

Meta-analysis of Marriage Enhancement Programs
CODEBOOK

STUDY IDENTIFICATION

Note: Items with an * were added after data was entered into CMA. Numbered items indicate items coded prior to entering data into CMA.

*Rehabilitated data: Have any rehabilitation efforts been used (do not include contacting authors for information) to include this data?

1. Yes
2. No

*Unit of Analysis

Couple
Individual
Female
Male

*Timing of coded data (by study level)

1. Post-program
2. Pre, post-program
3. Pre, post, Follow-up
4. Pre, Post, Follow up
5. Pre, Follow-up
6. Post, Follow-up
7. Follow-up

*Post or Follow-up (by row of data entered within study)

Post
Follow-up

*First Coder

1. Alan
2. Liz
3. Vickie

*Second Coder

1. Alan
2. Liz
3. Vickie
4. Seth
5. Angela
6. Jaelynn

1. Study Code (all first studies within a report have an "a" after the number; all subsequent studies from a given report share the same number and are lettered in alphabetical order.

2. Study Title

3. Authors

4. Year (Mark with an * if data was collected more than 10 years prior to publication date)

5. Type of Publication
    1. Journal Article
    2. Book or Chapter
    3. Doctoral Dissertation
    4. Master's Thesis
    5. Other

*Pub
    1. Published
    2. Unpublished

6. Study quality/Empirically Supported Treatment
    1. Experimental – Random Assignment to Groups (couple assigned to group by researcher), and Control Group (no treatment, delayed treatment, comparison group)
    2. Quasi-Experimental – Non Random Assignment to Groups (groups formed themselves – 1st 20 callers or this church group…), and Control Group
    3. Pre-post – No Control Group
    4. Post only – Post hoc analysis

*6B. Data entry (what format did we have to use to enter the data in CMA?)
    1. Experimental
    2. Quasi-experimental
    3. Pre-post, no control
    4. Post Only Group Comparison
    5. Pre-follow-up experimental
    6. Pre-follow-up quasi-experimental

*6C. Design Condensed (how we combined the data for analysis)
    1. Experimental (includes 6B codes 1, 4, and 5)
    2. Quasi-experimental (includes 6B codes 2 and 6)
    3. Pre-post only, no control

*6D. Combined (used to create the Experimental and Quasi Experimental data sets)
    1. Exp/Quasi

2. Pre-post, no control

SUBJECTS

7. Total Number of units of analysis (individuals or couples) who started the intervention program and completed pre-assessment.

8. Total Number of units of analysis (individuals or couples) who finished the program.

9. Rate of Attrition (%) for entire sample _____

10. Rate of Attrition (%) for treatment group _____

11. Rate of Attrition (%) for control group _____

12. Subject Gender
    1. Female Majority (over 67%)
    2. Male Majority (over 67%)
    3. Women and Men (roughly equal numbers)

*Gender of Groups
    1. Couples together
    2. Couples separated
    3. Male from couple only
    4. Female from couple only

13. Subjects' Marital Status (only code #8 if more than 20% are from a second group)
    1. High school students
    2. Single college students
    3. Married college students
    4. Single adults
    5. Engaged couples
    6. Married and/or co-habiting adults
    7. Divorced adults
    8. Sample included more than one of these groups
    9. Dating couples

14. Average Age of Male Subjects
    1. 15-20 years
    2. 21-25 years
    3. 26-30 years
    4. 31-40 years
    5. 41-50 years

15. Average Age of Female Subjects

1. 15-20 years
2. 21-25 years
3. 26-30 years
4. 31-40 years
5. 41-50 years

16. Was this a North American Sample?
    1. Yes
    2. No

17. Was the Ethnicity of Subjects explicitly reported?
    1. Yes
    2. No

18. Ethnicity of Subjects (reported and/or inferred)
    1. Virtually no diversity (less than 10% of sample)
    2. Some diversity (10-25% of sample)
    3. Sufficient diversity (25-33% of sample) – representative of national population
    4. Significant diversity (more than 33% of subjects not part of dominant group)
    5. Predominant group non-European

*Ethnicity Condensed
    1. Virtually no diversity (less than 10%)
    2. Some diversity (10-33%)
    3. Sig or Predominant Non-Eur.

19. SES of Subjects
    1. Primarily Middle-class
    2. Primarily Low Income
    3. Mixed Middle and Lower class
    4. Not reported

*SES Recode
    1 Primarily Middle-class
    2 Primarily Low Income
    3 Mixed Middle and Lower class

20. Husband's Average Education
    1. Less than High School
    2. Some High School
    3. High School Degree
    4. Some College
    5. College Graduates
    6. Post Graduate Education
    7. Not reported
    8. Not applicable

21. Wife's Average Education
    1. Less than High School
    2. Some High School
    3. High School Degree
    4. Some College
    5. College Graduates
    6. Post Graduate Education
    7. Not reported
    8. Not applicable

22. Average relationship length
    1. 0-2 years
    2. 3-5 years
    3. 6-10 years
    4. 11-15 years
    5. 16-20
    6. No relationship
    7. Not reported

23a. Percentage of Distressed Couples reported explicitly?
    1. Yes
    2. No

23b. Percentage of Distressed Couples
    1. None or minimal (0-10%)
    2. Some (11-25%)
    3. More (26-49%)
    4. A majority (50-90%)
    5. Almost all or all (90-100%)
    6. NA No relationship
    7. Unknown

*Distress recode
    1 (code 23b values1 and 2)
    2 (code 23b value 3)
    3 (code 23b value 4)
    4 (code 23b value 5)
    Blank (code 23b values 6 and 7)

PROGRAM DESCRIPTION

24. Program Name _____

25. Type of Program

1. Education in high schools on the value of marriage, relationship skills, and budgeting
2. Pre-marital education and skills training
3. Transition to parenthood
4. Marriage enhancement and skills training

26. Primary Program Content (Explicitly taught/presented during the program)

1. Communication Skills Training
2. Expectations & Knowledge (Specific Informational Topic Discussions – Finances, Sexuality, In-laws, Parenting)
3. Motivations/Virtues (Intimacy, Commitment, Friendship)
4. Content determined by couple discussion (not a pre-determined program content)

27. Secondary Program Content (Information taught or inferred by subjects during the program)
1. Communication Skills Training
2. Expectations & Knowledge (Specific Informational Topic Discussions – Finances, Sexuality, In-laws, Parenting)
3. Motivations/Virtues (Intimacy, Commitment, Friendship)
4. Content determined by couple discussion (not a pre-determined program content)
5. None

28. Was the program didactic-based or self-guided?
1. Didactic-based
2. Mostly didactic-based (60-80%) and some self-guided
3. Roughly equal didactic and self-guided components
4. Self-guided
5. Mostly self-guided (60-80%) and some didactic-based
6. Not Reported/Unknown

29. Did the program utilize a video?
1. Yes
2. No
3. Not Reported/Unknown
4. Probably Yes
5. Probably No

30. Did the program ask couples to role-play situations or practice skills?
1. Yes
2. No
3. Not Reported/Unknown
4. Probably Yes
5. Probably No

31. Did the program delivery use group discussion?
    1. Yes
    2. No
    3. Not Reported/Unknown
    4. Probably Yes
    5. Probably No

32. Did the program use workbook exercises/homework between sessions?
    1. Yes
    2. No
    3. Not Reported/Unknown
    4. Probably Yes
    5. Probably No

33. Did the program use support groups/mentor couples for between session or post-program support?
    1. Yes
    2. No
    3. Not Reported/Unknown
    4. Probably Yes
    5. Probably No

34. Number of hours spent in follow-up or booster sessions:

35. Program Length, total # of hours _____ (total time in program)

36. Dosage (total time in program)
    1. Low (1-8 hours)
    2. Moderate (9-20 hours)
    3. High (21+ hours)
    4. Not reported

*Dosage recode
    1 (36 code 1)
    2 (36 code 2)
    3 (36 code 3)
    Blank (36 code 4)?

37. Program Setting (Primary)
    1. Church
    2. Therapy Clinic
    3. Health-Care
    4. High-school or University Class
    5. Community (YMCA, library, mother's group, shelter)
    6. Military
    7. Other

8. Prob. Univ./Therapy
9. Home

38. Program Setting (Secondary)
    1. Church
    2. Therapy Clinic
    3. Health-Care
    4. High-school or University Class
    5. Community (YMCA, library, mother's group, shelter)
    6. Military
    7. Other
    8. None
    9. Home

METHODS

39. Timing of Data Collection
    1. Pre – Program only
    2. Post – Program only (within 1 month following the program)
    3. Pre, Post – Program
    4. Pre, Post, Follow-up
    5. Pre, Post, Multiple Follow-ups
    6. Pre, Follow-up
    7. Pre, Multiple Follow-ups
    8. Post, Follow-up

40. Timing of Follow-up (1) from post-assessment
    1. 1-3 months
    2. 4-6 months
    3. 7-9 months
    4. 10 months to1 year
    5. Longer than 1 year
    6. None

41. Did the study have more than 1 Follow-up?
    1. Yes
    2. No

42. Timing of the last Follow-up _____ months (from post-assessment)

43. Did the study use Subject Self-Report measures?
    1. Yes
    2. No

44. Did the study use a Standardized Relationship Satisfaction Scale (RDAS, LMAT)?
    1. Yes

2. No

45. List the Satisfaction scale used _____.

46. Did the study use a Standardized Communication Scale?
1. Yes
2. No

47. List the Communication scale used _____.

48. Did the study use an Observed Communication Task?
1. Yes
2. No

49. List the method of coding used _____.

50. Did the study measure Relationship virtues (friendship, commitment, loyalty)? (Note: include the name of the measure and the construct it assess in the notes).
1. Yes
2. No

51. Control Group (answer this based on how the data has to be entered; note the authors' original intentions in the notes)
1. Classic No-treatment control group
2. Comparison control group (received some type of intervention) /Placebo
3. Wait list control group (delayed)
4. No-control group

52. Random Assignment to groups (*after volunteering for the study) (answer this based on how the data has to be entered; note the authors' original intentions in the notes)
1. Yes (if researcher put couples into groups)
2. No (if group is pre-formed)
3. Matched (if characteristics are equal as part of group assignment – not a test of homogeneity)
4. One group only

53. Did the study report results for men and women separately?
1. Yes
2. No

54. Did the study conduct group-equivalence analyses? (answer this based on how the data has to be entered; note the authors' original intentions in the notes)
1. No, it wasn't appropriate for their design (1 group, pre-post program evaluation)
2. No. (They should have, but didn't)
3. Yes, they found group differences.

4. Yes, they found minimal differences, or none.

DATA

*Refer to data collection software.

CMA identifies the required data based upon the type of methods reported in the article/report. Most studies will require a *mean*, *standard deviation* and *number of subjects* for men and women in each group at each time of measurement.