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Christine E. Leistner, Student

Dr. Kristen P. Mark, Major Professor

Dr. Margaret Bausch, Director of Graduate Studies

Risk and protective factors for sexual desire among women with children and
their romantic partners

DISSERTATION

A dissertation submitted in partial fulfillment of the
Requirements for the degree of Doctor of Philosophy in the
College of Education at the University of Kentucky

By

Christine E. Leistner

Lexington, Kentucky

Director: Dr. Kristen P. Mark, Associate Professor of Health Promotion

Lexington, Kentucky

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ABSTRACT OF DISSERTATION

RISK AND PROTECTIVE FACTORS FOR SEXUAL DESIRE AMONG WOMEN WITH CHILDREN AND THEIR ROMANTIC PARTNERS

Romantic couples with children struggle to balance the needs of their romantic relationships with the responsibilities of parenting and mothers report difficulty viewing themselves as sexual beings after having children. Understanding the risk and protective factors for sexual and relational outcomes for couples with children or those that may have children in the future may provide insight into the dynamics of these couples and the ways in which parents can preserve relational health over time. The current study utilized Basson's Model of Sexual Response (2000) as a conceptual theoretical framework and the Actor Partner Interdependence Model (APIM; Kenny et al., 2006) as an analytic framework for conducting couple-level research on sexual desire, sexual satisfaction, relationship satisfaction, sexual rewards and costs, and infidelity. The current study had the following four aims: 1) to develop and validate a reliable tool to measure individuals' Attitudes Towards Mothers as Sexual Beings (ATMSB) in a sample of couples with and without children. 2) to assess differences in ATMSB and sexual/relational outcomes of ATMSB among couples with children and couples without children, 3) to examine the role of Adverse Childhood Experiences (ACEs) in influencing sexual and relational outcomes among couples with children, and 4) to investigate the impact of positive communication, partner appraisals, and sexual rewards and costs on sexual and relational outcomes among couples with children. The current study collected data from 294 individuals in mixed sex (one man and one woman) couples through an online questionnaire. In the first study, the ATMSB scale items were developed and an exploratory factor analysis was conducted yielding the following three scale factors: 1) Quality of Motherhood and Sexuality, 2) Mothers' Sexual Functioning, 3) Mothers' Sexual Pleasure and Enjoyment with high construct validity. A series of multiple linear regressions and structural equation models

(SEM) were conducted predicting sexual desire, sexual satisfaction, relationship satisfaction, and desire discrepancies. Results indicated that ATMSB total scores and individual subscale scores predicted sexual satisfaction, relationship satisfaction, dyadic sexual desire and desire discrepancies with varying actor and partner effects among men and women with children and without children. These results indicated that when men and women endorse beliefs that mothers and sexuality are compatible, they have higher levels of sexual and relational health within the couple. Additionally, couples with children had more positive ATMSB overall and there were similarities and differences in the impact of ATMSB (and subscales) on sexual and relational outcomes between couples with children compared to those without children. In the second study, the impact of Adverse Childhood Experiences (ACE) score on sexual desire, desire discrepancies, sexual satisfaction, relationship satisfaction, sexual rewards and costs, and infidelity was measured among couples with children. A logistic regression and a series of multiple linear models were conducted with results indicating that for women, ACE score predicted the equality of sexual costs (EQcst). For men, higher ACE scores predicted a greater likelihood of engaging infidelity. Results from the SEM indicated that men's ACE score predicted women's sense of equality of sexual costs among partners (EQcst). These results indicate that ACE scores are associated with negative sexual and relational outcomes among couples with children. In the third study, the impact of positive communication, partner appraisal, and rewards and costs of the sexual relationship on sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction was measured among couples with children. A series of multiple linear regressions and a SEM were conducted with results indicating that when individuals engage in more positive communication strategies, they have significantly higher levels of sexual satisfaction and relationship satisfaction as do their partners. More positive partner appraisals were associated with higher levels of relationship satisfaction for men and women and their partners. As a whole, a number of risk and protective factors were identified for sexual and romantic relationships among couples with children. Implications for future research, clinical work and health promotion programing targeting parents are discussed.

KEYWORDS: Parents, Sexual Desire, Satisfaction, Mothers, Sexual Attitudes

Christine E. Leistner

04-2-18

Date

RISK AND PROTECTIVE FACTORS FOR SEXUAL DESIRE AMONG WOMEN
WITH CHILDREN AND THEIR ROMANTIC PARTNERS

By

Christine E. Leistner

Kristen P. Mark

Director of Dissertation

Margaret Bausch

Director of Graduate Studies

4/26/18

I dedicate this dissertation to myself, and all of the other women in the world who are researchers, scientists, teachers, filmmakers, leaders, doctors, maids, farm workers, home-makers, business owners, community workers, revolutionaries, CEOs, matriarchs, and mothers.

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CHAPTER 1

INTRODUCTION

Background

Mothers have significantly lower levels of sexual desire and relationship satisfaction in comparison to fathers and non-parents (Botros, Abromov, Miller, Sand, Gandhi, Nickolov, Goldbert, 2006; Shapiro, Gottman, & Carreere, 2000; Witting et al., 2008). Both mothers and fathers in the United States (US) report experiencing difficulty balancing the needs of their family with their romantic relationships, and many report trouble achieving the level of sexual activity they desire (Risch, Riley, & Lawler, 2003). As the majority of women in the United States (US; 59%) between the ages of 15 and 50 are mothers (Monte & Ellis, 2014) and 85% of women in the US between the ages 40-44 have given birth (Livingston, 2015), this is a relevant interpersonal health concern. Furthermore, mothers' emotional and interpersonal well-being significantly impacts the health of their children (see Beydoun, Beydoun, Kaufman, Lo, & Zonderman, 2012; Garber, Ciesla, McCauley, & Diamond, 2011), indicating implications beyond the individual level of health.

Among mothers, sexual functioning is significantly impacted by pregnancy and birth (Botros et al., 2006; Chivers, Pittini, Grigoriadis, Villegas, & Ross, 2011). Sexual desire is uniquely influenced by the transition to parenthood compared to other sexual functioning constructs such as orgasm or pain (Botros et al., 2006). Additionally, parents report considerable sexual problems due to sexual desire discrepancies (differences in desired sexual activity among sexual partners) between mothers and fathers (Pastore, Owens, & Raymond, 2007). In the postpartum period (six months or less since birth of

last child), mothers report lower levels of sexual desire compared to their male partners (Ahlborg, Rudelblad, Linner, & Linton, 2008; Nezhad & Goodarzi, 2011). On average, fathers report desiring sexual activity twice per week whereas mothers report preferring sexual activity twice per month (Ahlborg et al., 2008). Furthermore, sexual desire problems among parents may not improve for many couples after the postpartum period when children are older (Ahlborg et al., 2008).

After transitioning into parenthood, women report that they no longer perceive themselves as sexual beings (Trice-Black, 2010). Attitudes about sexuality impact sexual health outcomes among men and women in the general population (Nobre & Pinto-Gouveia, 2006). In general, men and women do not perceive motherhood as compatible with sexuality (Friedman et al., 1998). When asked to describe a sexual woman, many men and women describe her as not a good mother (Friedman et al., 1998). For parents, these attitudes may have an impact on their overall sexual and relational outcomes. However, there are currently no tools to measure these attitudes about sexuality that are specific to mothers. These attitudes may also be important to consider for long-term couples given that many couples in the US eventually have children (Livington, 2015). Therefore, assessing attitudes about mothers and sexuality from parents in addition to individuals in long-term relationships may be important to fully understand the impact of these attitudes on sexuality.

Furthermore, many studies that conduct research that is relevant to sexuality among couples with children has been conducted in other countries outside of the US (e.g., Ahlborg et al., 2008; Witting et al., 2008). Due to recent research indicating that parents in the US have significantly lower levels of well-being compared to parents in

other countries (Glass, 2016), understanding sexual and relational outcomes among couples with children and those that are likely to have children in the US is needed.

Finally, sexual and relationship health is strongly associated with relationship stability and commitment among partners regardless of parenting status (Sprecher, 2002). Divorce in the US is highly prevalent (CDC, 2015), and individuals who experience a parental divorce as children are more likely to divorce in adulthood due to marital problems such as substance use/abuse, anger, infidelity, and spousal criticism (Amato & Rogers, 1997). Divorce is considered one of the ten adverse childhood experiences (ACEs) associated with a variety of negative mental, interpersonal, and physical health outcomes in adulthood (Anda, Chapman, Felitti, Edwards, Williamson, Croft, & Giles, 2002; Dube, Felitti, Dong, Giles, & Anda, 2003; Hillis, Anda, Dube, Felitti, Marchbanks, & Marks, 2004; Jorm, Christensen, Rodgers, Jacomb, & Easteel, 2004; Miller, Breslau, Chung, Green, McLaughlin, & Kessler, 2011).

Therefore, understanding how to improve and/or maintain mothers' sexual and relational health in the context of intact couples (couples who are still together) may have positive implications for partners' romantic relationships and the health of their children in future generations. Interpersonal, intimacy promoting skills such as positive communication (Shapiro et al., 2000) and positive partner appraisals (Sacco & Phares, 2001) may provide protective factors against the negative relational impact of parenting for couples. Taken together, there is a need to understand the risk and protective factors for sexual and relational health among couples with children and those that are likely to have children in the US.

Purpose

Sexual and relational health is positively related to the overall well-being among long-term romantic partners (Rosen & Bachmann, 2008). However, parenthood may negatively impact these health outcomes, especially for women (Shapiro et al., 2000). Based on previous literature, risk factors including sexual desire discrepancies, depression, negative partner appraisals, ACEs, and low self-esteem may decrease sexual desire and overall relationship health among mothers and their partners (DeJudicibus & McCabe, 2002; Kline, Martin, & Deyo, 1998; Mark, 2014; Sacco & Phares, 2001). However, protective factors such as positive appraisals of one's romantic partner and positive communication between partners (expressions of fondness or affection, positive disclosure, and exchanging compliments) are linked to higher levels of relationship satisfaction (Sacco & Phares, 2001; Sanford, 2006; Shapiro et al., 2000). As relationship satisfaction is associated with more sexual satisfaction and desire (Sprecher, 2002; Mark, 2014), these factors may provide a protective quality for sexual desire and satisfaction among couples with children.

Additionally, sexual attitudes impact overall sexual functioning among the general population of men and women (Nobre & Pinto-Gouveia, 2006). However, little is known about sexual attitudes related to mothers or parents. Given the wide gap between couples with children and couples without children in the United States in terms of well-being (Glass, 2016), examining the impact of sexual attitudes related to mothers on sexual and relational outcomes may provide evidence for additional risk or protective factors for relational health among parents. In addition, understanding the differences between attitudes towards mothers' sexuality between couples with children and

couples without children may provide tools for assessing couples transitioning into parenthood.

Therefore, the current study broadly aimed to investigate the risk and protective factors associated with sexual and relational health among couples with children living in the US by developing a tool to measure attitudes towards mothers' sexuality and examining a variety of possible risk and protective factors that are likely to impact couples with children.

Research Questions

Manuscript 1

RQ1: Are the Attitudes Towards Mothers as Sexual Beings (ATMSB) scale and subscales reliable for testing ATMSB among individuals in romantic couples?

RQ2: Are there differences in ATMSB and subscale scores between individuals in couples with children and couples without children?

RQ3: Are Attitudes Towards Mothers as Sexual Beings (ATMSB) and specific subscales associated with sexual desire among partnered men and women with children and those without children?

RQ4: Are ATMSB and specific subscales associated with sexual desire discrepancies among partnered men and women with children and those without children?

RQ5: Are ATMSB and specific subscales associated with relationship satisfaction among partnered men and women with children and those without children?

RQ6: Are ATMSB and specific subscales associated with sexual satisfaction among partnered men and women with children and those without children?

RQ7: Are individuals' ATMSB and subscale scores associated with their partners' dyadic sexual desire in the context of partnered men and women with children and those without children?

RQ8: Are individuals' ATMSB and subscale scores associated with their partners' sexual satisfaction in the context of partnered men and women with children and those without children?

RQ9: Are individuals' ATMSB and subscale scores associated with their partners' relationship satisfaction in the context of partnered men and women with children and those without children?

Manuscript 2

RQ1: Are there differences in Adverse Childhood Experiences (ACE) scores, sexual desire, sexual satisfaction, relationship satisfaction, sexual rewards and costs, and infidelity among partnered men and women with children

RQ2: Is ACE score associated with sexual desire among partnered men and women with children?

RQ3: Is ACE score associated with sexual satisfaction among partnered men and women with children?

RQ4: Is ACE score associated with relationship satisfaction among partnered men and women with children?

RQ5: Is ACE score associated with sexual rewards and costs among partnered men and women with children?

RQ6: Is ACE score associated with infidelity among partnered men and women with children?

RQ7: Do individuals' ACE scores impact their partners' sexual desire in the context of intact couples with children?

RQ8: Do individuals' ACE scores impact their partners' sexual satisfaction in the context of intact couples with children?

RQ9: Do individuals' ACE scores impact their partners' relationship satisfaction in the context of intact couples with children?

RQ10: Do individuals' ACE scores impact their partners' sexual rewards and costs in the context of intact couples with children?

Manuscript 3

RQ1: Are positive communication, sexual rewards and costs, and positive partner appraisals associated with sexual desire among partnered men and women with children?

RQ2: Are positive communication, sexual rewards and costs, and positive partner appraisals associated with desire discrepancies among partnered men and women with children?

RQ3: Are positive communication, sexual rewards and costs, and positive partner appraisals associated with sexual satisfaction among partnered men and women with children?

RQ4: Are positive communication, sexual rewards and costs, and positive partner appraisals associated with relationship satisfaction among partnered men and women with children?

RQ5: Are individuals' positive communication, sexual rewards and costs, and/or positive partner appraisals associated with their partners' sexual desire in the context of partnered men and women with children?

RQ6: Are individuals' positive communication, sexual rewards and costs, and/or positive partner appraisals associated with their partners' sexual desire discrepancies in the context of partnered men and women with children?

RQ7: Are individuals' positive communication, sexual rewards and costs, and/or positive partner appraisals associated with their partners' sexual satisfaction in the context of partnered men and women with children?

RQ8: Are individuals' positive communication, sexual rewards and costs, and/or positive partner appraisals associated with their partners' relationship satisfaction in the context of partnered men and women with children?

Significance of Study to Health Promotion

The term health promotion refers to any applied “combination of educational, political, environmental, regulatory, or organizational mechanisms that support actions and conditions of living conducive to the health of individuals, groups, and communities” (McKenzie et al., 2013, p. 4). Researching the risk and protective factors for sexual and relational well-being among parents provides relevant information that may offer clinical, educational, and organizational health benefits for parents, families, and couples that may decide to have children in the future.

At the organization level, the proposed research can inform health promotion strategies for improving maternal and child health in hospitals by providing evidence for a focus on relationship-building skills among new mothers and their romantic partners.

Much like the evidence to support implementing breastfeeding classes in hospitals during pregnancy, the proposed research offers evidence for health education strategies focused on romantic relationships among couples thinking about having children or parents during the pregnancy and postpartum periods and beyond. In addition, the proposed research may provide support for trauma-informed assessment and therapy among parents with sexual and relational concerns in a clinical setting.

On an educational level, the proposed research may offer new information that has potential to change parents' knowledge, attitudes, and behaviors regarding sexual and relational health in the context of their families. As sexuality education in the US has been limited, parents likely have insufficient formal education about building and maintaining healthy sexual relationships (Weaver, Smith, & Kippax, 2005). Therefore, research investigating skill-based risk and protective factors that contribute to sexual and relational health outcomes has a variety of implications for the field of health promotion.

Theoretical Framework

The current research utilized Basson's Model of Female Sexual Response (2000) to investigate the risk and protective factors of sexual and relational outcomes among couples with children.

Basson's Model of Female Sexual Response

Basson's model of female sexual response is an intimacy-based model created in the context of long-term relationships that provides a well-suited framework for conceptualizing sexuality among mothers and their romantic partners in long-term relationships (see Basson, 2000).

This model indicates that individuals engage in sexual activity in response to a variety of sexual and non-sexual stimuli and motivational factors (Basson, 2000; 2002; Basson et al., 2004). Basson (2000, 2002; Basson et al., 2004) proposes that individuals recognize the positive, intimacy-based outcomes of engaging in sexual activity as sexual motivation and utilize those stimuli as incentive for the next time they are presented with a sexual opportunity (Basson, 2000, 2002; Basson, 2004). There are a variety of constructs provided within Basson's sexual response model that are applicable to mothers' sexuality including sexual desire, sexual stimuli (e.g., orgasm), non-sexual stimuli (e.g., relationship satisfaction, intimacy), and motivational factors that activate or maintain the cycle of sexual response (e.g., positive sexual rewards, emotional satisfaction, and physical satisfaction). Additionally, the sexual response cycle presented in this model is impacted by individual-level constructs including psychological factors that impact the mental and emotional processing of sexual or intimate stimuli (e.g., depression, anxiety, self-esteem, attitudes toward sexuality), the cognitive appraisal of sexual stimuli, and the ability to communicate effectively (Basson et al., 2004). The current study focused on the psychological and interpersonal factors that may impact the processing of sexual stimuli among individuals.

Delimitations

Delimitations include the boundaries of your research design and support indicating why certain boundaries were set for the proposed research (Baltimore County Public Schools [BCPS], 2010). These boundaries encompass population selection, chosen information for literature review, and methodological design (BCPS, 2010). The

current research study included a specific population based on population demographics and previous literature in the area of mothers' sexuality.

For example, the current research included mixed sex couples (one man and one woman) that have been in long-term relationships for 3 or more years. These guidelines are taken from past research examining long-term relationships that includes a relationship length of three or more years (e.g., Mark, 2014). Single parent households were not included in the current research due to a specific aim of capturing sexual dynamics among partners in a couple. Furthermore, nearly 70% of children in the US live in households with two parents who are in romantic partnerships; the majority of which include their biological mother (Krieder & Ellis, 2011). Therefore, the current research did not include couples with children who have been adopted, in foster care, or who do not live with the family on a full-time basis. Additionally, this study aimed to add to the literature on mothers' sexuality that has focused on biological, premenopausal mothers. Menopause has significant implications for sexual desire among women (Avis, Stellato, Crawford, Johannes, & Longcope, 2000) and therefore, menopausal women were not included in the current research.

Male participants were included under the same applicable guidelines as mothers with the exception of being a biological parent and being premenopausal. Therefore, men who have been in a committed relationship for three or more years with a biological mother of children under 18 years old living in the home full-time were included. The non-parent group had the same inclusion criteria with the exception of children living in the home.

Though there are a variety of family dynamics that exist in the US, same-sex partnerships, single-parent households, and households with children living in the home less than full-time were beyond the scope of the proposed study. Therefore, research content including aspects of these households was not included in the literature review for the current research.

Limitations

Delimitations are controlled by the researcher and set the scope for the study design, whereas study limitations are not within the researcher's control but may impact the research outcomes (BCPS, 2010). The current study has a variety of limitations. For example, a convenience sample was obtained from the online survey data collection design. This sample was not representative of the US population of parents as a whole. In addition, the current sampling methodology did not reach specific populations that may be more likely to not have internet access (Wright, 2005).

An additional limitation was the lack of ability to control for hormone levels in the current research. Levels of hormone, including testosterone and estrogen, circulating the body may impact sexual outcomes among women (Wallen, 2001). The current study design controlled for these changes in menopause and assessed whether or not a woman is currently utilizing contraception, however natural fluctuations or differences in hormone levels that may impact sexual desire will not be measured.

Assumptions

1. Participants will maintain confidentiality.
2. Participants will complete the survey truthfully.

3. The proposed study will receive funding from the Patty Brisben Foundation (grant awarded).
4. Funding will be administered for participant incentives in a timely manner.
5. Participants will be able to access the online survey and complete it successfully.

Operational Definitions

Biological Mother: a woman who gave birth to her children (Harold et al., 2013).

Child/ren: Individuals under the age of 18 years (UNICEF, 2016).

Depression: A mental health status in which one experiences feelings of sadness, unhappiness, or misery that may result in cognitive and behavioral changes including difficulty concentrating, change in appetite, lack of activity, loss of libido, and altered sleeping habits (US National Library of Medicine, 2016).

Female Sexual Functioning: The degree to which a woman experiences sexual desire, sexual arousal, lubrication, orgasm, satisfaction, and pain (Rosen et al., 2000).

Live Birth: The birth of an infant that, after separation from mothers' body shows signs of life (WHO, 2018).

Long-Term Romantic Relationship: A romantic relationship with a duration of three or more years (Mark, 2014).

Mixed Sex Couple: A romantic couple including one male and one female partner (Mark, 2014).

Non-parent: An individual who has not given birth and/or does not have children.

Partner Appraisal: Partner rating his/her romantic partners' personal and interpersonal attributes (Murray, Holmes, & Griffin, 1996; Sacco & Phares, 2001).

Premenopausal: A physical status in which a woman experiences regular menstrual cycles each month (Gracia, Sammel, Freeman, Lin, Langan, Kapoor, & Nelson, 2005).

Positive Communication: Expression of fondness, affection, compliments, and positive disclosure among romantic partners (Sanford, 2006; Shapiro et al., 2000).

Post-partum: Six months or less since most recent birth (Alhorg et al., 2008; Nezhad & Goodarzi, 2011).

Relationship satisfaction: The degree to which one finds his/her romantic relationship with a partner good, satisfying, pleasant, positive, and valuable (Lawrance & Byers, 1992).

Self-Esteem: The combination of an individual's perceived self-concept, self-image, sense of identity, and meaning related to self (Bailey, 2003).

Sexual Desire: one's physical and psychological interest in engaging in sexual activity with a partner (Mark, 2014).

Sexual Satisfaction: The degree to which one finds his/her sexual relationship with a partner good, satisfying, pleasant, positive, and valuable (Lawrance & Byers, 1992).

Conclusion

In conclusion, parenthood is a difficult transitional time for many women that may have a long-lasting impact on sexuality among romantic couples. Maintaining a healthy sexual relationship can improve relationship satisfaction, quality, and stability among parents and protect against higher ACE scores among children. Sexuality remains an important factor in overall well-being and health among long-term couples, but little is known about the risk and protective factors impacting sexual desire and other sexual health outcomes among parents of children past the postpartum period.

Basson's model of female sexual response (Basson, 2000) is a useful tool that provided a framework for conducting research on the topic of sexuality among couples. This model highlights the sexual and intimate dynamics among partners in the context of long-term relationships and provide helpful constructs contributing to sexual desire, satisfaction, and motivation among women. As such, the current study aimed to investigate personal and interpersonal risk and protective factors contributing to sexual and relational health.

CHAPTER 2

LITERATURE REVIEW

Background

Sexual well-being among mothers is a unique and significant subsection of women's sexuality across the lifespan. Among women in the United States ages 40-44, 85% have given birth to a child (Livingston, 2015). This information indicates that there are a significant amount of adults that are or will be parents in the US. The majority of children in the US live in households with their biological mother and her romantic partner (Kreider & Ellis, 2011). Therefore, the sexual and relational impact of motherhood is an important public health consideration. A significant amount of research has been done to investigate the sexual outcomes of becoming a mother for women and their partners, reporting that women's sexual functioning significantly declines in pregnancy and in the short-term postpartum period (Ahlborg, Dahlof, & Hallberg, 2005; Gokyildiz & Beji, 2005; Nezhad & Goodarzi, 2011; Yildiz, 2015). Additionally, sexual desire stands out as a construct of overall sexual functioning that is significantly impacted by motherhood, not only in the short-term, but also for years after birth (Ahlborg et al., 2008). However, little research has been conducted to investigate how motherhood impacts sexuality among women and their romantic partners in the years after the postpartum period.

This topic is important because women who become mothers have significantly lower levels of relational satisfaction compared to wives with no children and new fathers (Shapiro et al., 2000) and women report that the role of mother negatively impacts their sexual desire and their overall sense of themselves as a sexual being

(Sims & Meana, 2010; Trice-Blackk). Becoming a mother impacts sexual desire more or differently than other features of sexual functioning (Botros et al., 2006) and issues with sexual desire are the most commonly reported concerns among new mothers who report sexual problems (Khajehei, Doherty, Tilley, & Sauer, 2015). In addition, parents report trouble maintaining their ideal levels of sexual interactions (Risch et al., 2003) and endorse sexual desire discrepancies as a significant concern (Pastore et al., 2007). As the majority of women in the US become mothers (Livingston, 2015) and most children live in a home with their biological mother (Kreider & Ellis, 2011), researching mothers' sexual well-being has many implications for overall health among long-term couples that may become parents in the future, current parents, and children. This literature review includes epidemiological, risk and protective factors impacting mothers' sexuality, relevant trends in the general sexual desire literature, research gaps in the literature among mothers' sexuality including a lack of tools to measure attitudes towards mothers' sexuality, and relevant sexuality attitudes scale development literature

Epidemiological Factors

A review of the literature on epidemiological studies of sexual dysfunction among women indicates that between 24-43% of women meet the Diagnostic and Statistical Manual for Mental Diagnoses (DSM-IV; American Psychological Association [APA], 2000) criteria for low female sexual desire disorder (Segraves & Woodard, 2006). Among mothers, sexual functioning remains significantly higher. For example, one recent study found that over 64% of women reported sexual dysfunction during the first year postpartum and even more (70.5%) were unsatisfied with their sexual relationships during this time period (Khajehei, et al., 2015). These findings indicate a need to

understand the reasons for low levels of sexual functioning among women in general paying close attention to women with children.

Among the types of sexual dysfunction examined, low sexual desire was the most prevalent with 81.2% of mothers who endorsed sexual dysfunction reporting this as a significant problem (Khajehei et al., 2015). Though women at six months postpartum report no differences in relationship satisfaction, they experience severe declines in sexual desire compared to their pre-pregnancy levels (DeJudicibus & McCabe, 2002). However, a longitudinal study examining sexual and relational outcomes among parents over a four-year period, found that relationship satisfaction eventually declines years after the initial birth (4 years; Ahlborg et al., 2008). These findings indicate that as time progresses relational and sexual indicators may get worse for couples with children.

Risk Factors

There are a variety of risk factors for low sexual functioning among women with children. For mothers, the pregnancy and the process of giving birth appear to be a risk factor for sexual functioning (specifically for desire), as multiple studies found decreases in sexual functioning during this time in a woman's life (e.g., DeJudicibus & McCabe, 2002; Khajehei et al., 2015; Nezhad & Goodarzi, 2011). However, a variety of specific risk factors impact mothers' sexual health including: number of children (Witting et al., 2008), age of children (Call, Sprecher, & Schwartz, 1995), experiences with fatigue (DeJudicibus & McCabe, 2002), sexual desire discrepancies between partners (Ahlborg et al., 2008), depression (Khajehei et al., 2015), low self-esteem (Trice-Black & Foster,

2011), lack of employment (Hyde, DeLamater, & Durik, 2001), societal “mother” roles (Sims & Meana, 2010), and ACEs (Dube et al., 2003).

Number of Children

Findings from studies examining the impact of number of children on sexual functioning are mixed. Kadri and colleagues (2002) found that number of children was positively related to sexual dysfunction among women, such that the more children a woman had, the more sexual dysfunction she experienced. However, primiparity, or having only one child, has also been found to be a risk factor for sexual dysfunction among mothers (Khajehei et al., 2015). Pregnant mothers giving birth to their first child experience significantly more sexual issues in comparison to women giving birth to subsequent children (Chang, Ho, Chen, Shyu, Huang, & Lin, 2012; Khajehei et al., 2015). One reason for this may be that primiparous women are more likely to experience vaginal tearing during delivery and women who tear are more likely to have lower levels of sexual functioning (Rathfisch, Dikencik, Beji, Comert, Tekirdag, & Kadioglu, 2010). Taken together, these findings indicate that having children is a risk factor for sexual functioning, and women having more than one child may be better adjusted than primiparous women.

However, the specific number of children may be important to consider. For example, one of the only studies investigating sexuality among mothers with children of a variety of ages (all under 18 years) indicated that women with four or more children have higher levels of sexual desire compared to women with two or three children (Witting et al., 2008). Therefore, having two or three children may be a risk factor for sexual problems among mothers according to this study. On the contrary, a longitudinal

study examining sexual functioning among first-time parents at six months postpartum and four years later, indicated that if the couple had subsequent children, they had higher rates of sexual frequency and stability compared to couples who stopped with one child (Ahlborg et al., 2008). Other contributing factors may impact the risk associated with number of children on mothers' sexual functioning such as attitudes and perceptions about sexuality and fatigue (Ahlborg et al., 2008). However, the causal nature of these findings is difficult to ascertain. In general, couples with more than one child tend to be better adjusted than couples with just the one child (Ahlborg et al., 2008; Chang et al., 2012; Khajehei et al., 2015), however mothers with multiple children still report high rates of sexual dysfunction (Kadri, Alami & Tahiri, 2002).

The presence of children under five years old in the home negatively impacts sexuality for parents through decreasing instances of opportunity for sexual activity (Call et al., 1995). However, when parents have older children (5-18 years old) living in the household, they have higher rates of sexual frequency (Call et al., 1995). These findings indicate that while caring for young children may place some strain on the sexual relationship for parents, this strain is likely temporary.

Fatigue

Fatigue also impacts women's sexuality in pregnancy and after birth (DeJudicibus & McCabe, 2002). For example, women's sexual desire is significantly predicted by fatigue during pregnancy and 12 weeks postpartum (DeJudicibus & McCabe, 2002). Fatigue is considered a risk factor for sexual functioning because women endorse it as a top reason for not resuming sexual intercourse with their partner even at six months postpartum (Barrett, Pendry, Peacock, Victor, Thakar, & Manyonda,

2000). For mothers, fatigue decreases levels of dyadic sexual desire or desire to engage in sexual activity with one's partner (Hipp, Low, & Van Anders, 2012). Furthermore, significantly more new mothers (60%) report experiencing severe fatigue compared to new fathers (6%) and mothers are more likely to identify this as a problem (Nezhad & Goodarzi, 2011). In addition, fatigue has no impact on mothers' solitary sexual desire (desire to engage sexually with oneself), indicating a unique partner effect (Hipp et al., 2012).

Sexual Desire Discrepancies

Discrepancies between sexual desire levels among partners are also a significant risk factor for sexuality among couples with children. In the postpartum period, women report lower levels of sexual desire compared to their male partners (Ahlborg et al., 2008; Nezhad & Goodarzi, 2011). This finding is true for the immediate postpartum (6 months), however desire discrepancies between partners continue for years after the birth of the first child (Ahlborg et al., 2008). On average, fathers report desiring sexual activity twice per week whereas mothers report preferring sexual activity twice per month (Ahlborg et al., 2008). Therefore, if a couple is engaging in sexual activity twice per month (as preferred by the mother), the male partner is not engaging in sexual activity the majority of instances he desires in a given month. This may be why couples frequently report sexual problems due to desire discrepancies one year postpartum (Pastore et al., 2007).

Furthermore, desire discrepancies are significantly linked to sexual and relationship satisfaction for men, not women (Mark, 2012) indicating couple-level complexity in this risk factor for mothers' sexual functioning. Desire discrepancies are

also linked to decreased relationship stability and more conflict among partners (Willoughby, Farero, & Busby, 2014). These findings are true for couples regardless of whether or not they have children (Mark, 2012; Willoughby et al., 2014). Taken together, desire discrepancies may impact the sexual functioning of male partners more than women, however, there are significant relationship implications due to these discrepancies. More research is needed specific to parents to fully understand how discrepancies impact sexual functioning for mothers and their partners.

Depression

Depression is also a significant risk factor. Mothers with higher rates of depression have higher rates of sexual dysfunction in the short-term postpartum period (Chivers et al., 2011) and one year after birth (Khajehei et al., 2015). Low sexual desire is predicted by depression during pregnancy and postpartum for women (DeJudicibus & McCabe, 2002). Chivers and colleagues (2011) found that although both depressed and non-depressed women met criteria for sexual desire dysfunction in the postpartum period, women with depressive symptomology also met criteria for dysfunction in sexual arousal, orgasm, pain, lubrication and satisfaction (Chivers, et al., 2011). These findings indicate that depression is a significant risk factor for low functioning across multiple sexual domains for mothers. Furthermore, researchers suggest that a person experiencing depression is likely also experiencing low self-esteem (Sacco & Phares, 2001), indicating another possible risk factor.

Self-esteem

Though Hipp and colleagues (2012) found no associations between body image and sexual well-being among new mothers, other studies report that women endorse

weight gain and low self-esteem as factors impacting sexual desire after birth (Kline, Martin, & Deyo, 1998). Researchers suggest that broader self-esteem issues beyond body image may be a risk factor for mothers' sexual functioning (e.g., Basson, Brotto, Laan, Redmond, & Utian, 2005; Trice-Black & Foster, 2011).

Lack of Employment

Employment may be another factor contributing to mothers' sexuality. For example, Hyde and colleagues (2001) reported that full-time employment was positively related to sexual satisfaction and sexual interest among mothers with young children. Contrastingly, stay at home mothers were found to exhibit lower levels of sexual satisfaction and interest (Hyde et al., 2001). Therefore, finding employment outside of the home may be a protective factor associated with mothers' sexuality.

Societal Mother Role

The social role of mother has been reported by women to negatively impact their sexual desire (Sims & Meana, 2010). According to a qualitative study conducted to investigate negative impacts of women's sexual desire, the societal gender roles such as "wife" and "mother" contribute to a reduced sense of individual sexual desirability among women (Sims & Meana, 2010). The specific social role of mother also limits a woman's interactions with peers that contribute to her sense of self and purpose (Sims & Meana, 2010). Contradictory sexual scripts portray mothers as non-sexual caregivers and simultaneously produce women's bodies as sexual objects (Trice-Black & Foster, 2011). Therefore, the societal construction of gender roles and sexual scripts for women may impact mothers' sexuality, but more research is needed to empirically support this claim (Trice-Black & Foster, 2011).

Adverse Childhood Experiences

Adverse childhood experiences (ACEs) impact overall well-being including multiple components of sexual health (Dube et al., 2003). These traumatic experiences include sexual, physical, and emotional abuse, neglect, and parent or caretaker factors including mental illness, substance abuse, incarceration, domestic violence, and separation/divorce (Dube et al., 2003). To date, there are no research studies directly linking ACE scores to mothers' sexual functioning. However, childhood sexual abuse has been linked to lower sexual functioning among women (Beitchman, Zucker, Hood, DaCosta, Akman, & Cassavia, 1992) and a substantial amount of relevant literature exists examining sexual and relational outcomes of ACEs.

For example, individuals with higher ACE scores are more likely to experience depression, have increased sexual partners, contract a sexually transmitted infection (STI), and divorce (Amato & Rogers, 1997; Dube et al., 2003). Further, ACE scores are significantly related to early age of menarche, high-risk sexual activity, domestic violence, and less stable romantic relationships (Jorm et al., 2004). Due to the familial-level impact of ACE scores and mothers' sexuality in the context of romantic relationships, ACEs are an important and necessary consideration for research on sexuality among parents.

Sexuality Attitudes

Attitudes about sexuality impact sexual outcomes for both men and women (Nobre & Pinto-Gouveia, 2006). Specifically, when men and women have negative attitudes, they are more likely to meet criteria for sexual dysfunction (Nobre & Pinto-Gouveia, 2006). When women believe that body attractiveness is essential for engaging

in sexual activity, they are significantly lower sexual functioning compared to women who do not have these beliefs (Nobre & Pinto-Gouveia, 2006). Additionally, when men believe that the quality of an erection is the most important aspect of sexual satisfaction for a woman, they have significantly lower levels of sexual functioning as well (Nobre & Pinto-Gouveia, 2006). Women with disorders related to sexual functioning are more likely to have conservative beliefs about sexuality and negative body image beliefs in comparison to women without clinical sexual dysfunction (Nobre, Pinto-Gouveia, and Gomes, 2003). These attitudes about sexuality are likely to impact mothers as they report issues with body image. However, there is little research related to sexual attitudes about mothers. Therefore, understanding attitudes towards mothers' sexuality may provide insight into a possible risk or protective factor for sexual and relational outcomes among couples with children or who may have children in the future.

Protective Factors

Other factors may have protective benefit for sexual and relational functioning among women with children including a variety of individual-level attitudes and perceptions and partner-level skills.

Relationship satisfaction

Relationship satisfaction positively impacts sexuality for both men and women (Nezhad & Goodarzi, 2011). For mothers, relationship satisfaction is associated with less severe decreases in sexual desire during the pregnancy and postpartum stages (DeJudicibus & McCabe, 2002). Relationship satisfaction predicts higher sexual desire in women who are 12 weeks and six months postpartum (DeJudicibus & McCabe,

2002) and is significantly related to better overall sexual functioning for women one year postpartum (Khajehei et al., 2015).

However, this relationship is not specific to mothers or parents. For example, relationship satisfaction has been linked to sexual functioning for mothers and non-mothers (Witting et al., 2008). In fact, differences in relationship satisfaction were the only differences among identical twin women who were discordant in sexual functioning (Burri, Spector, & Rahman, 2013). Burri and colleagues (2013) report that when genetic and biological factors were omitted (due to the identical twin sample), relationship satisfaction was the only difference between women with “normal” levels of sexual functioning and those with clinical levels of sexual dysfunction (Burri et al., 2013). Therefore, relationship satisfaction is a protective factor for less severe declines in sexual desire and sexual dysfunction among women in the general population, including mothers.

Masturbation/Sexual Enjoyment Enhancing Activities

The first sexual behavior many women engage in after they give birth is masturbation (Hipp et al., 2012). Engaging in masturbation has been linked to higher levels of sexual enjoyment for women in the postpartum period and may be considered a positive factor associated with sexual functioning for mothers (Hipp et al., 2012). Hipp and colleagues (2012) posit that masturbation may bring enjoyment for postpartum women due to the solitary nature of the activity. When women are burdened by fatigue and other factors impacted by their sexual desire, masturbation may allow for women to have sexual enjoyment by alleviating other barriers to sexual activity (e.g., coordination with partner; Hipp et al., 2012). However, men and women have different attitudes

about engaging in masturbation and some women may require skill building to increase comfort level with masturbation (Oliver & Hyde, 1993).

Perceptions and Attitudes About Sexuality

Attitudes and perceptions about sexuality and sexual health have been linked to sexual behaviors in a number of ways (e.g., Ahlborg et al., 2008; Lawrance & Byers, 1995). For example, parents tend to have more negative attitudes about sexuality than non-parents, perceiving sexual activity with a partner as a cost depleting more of their energy (Lawrance & Byers, 1995). These negative attitudes toward engaging in sexual activity have been linked to lower levels of overall sexual satisfaction (Lawrance & Byers, 1995). Similar results have been reported about attitudes toward fatigue. When parents cite fatigue as a problem, they are more likely to have lower levels of sexual desire compared to parents who do not have these negative attitudes about fatigue (Ahlborg et al., 2008). Attitudes provide important individual-level information about mothers because the majority of parents experience fatigue, however perceiving that fatigue or lack of energy is problematic for sexuality is another factor connected to lower levels of sexual functioning (Ahlborg et al., 2008). Therefore, when parents have more positive attitudes toward sexuality (perhaps viewing sex as beneficial or motivation for intimacy) and do not view fatigue as a barrier to engaging in sexual activity, these attitudes may be protective for sexual desire.

This research is aligned with the general sexual motivation literature indicating that engaging in sexual activity for avoidance goals (to avoid a negative outcome) is associated with worse sexual functioning among couples (e.g., Impett, Finkel, Strachman, & Gable, 2008; Muise, Impett, & Desmarais, 2013). However, engaging in

sexual activity for approach goals, or motivations to attain a positive outcome (e.g., intimacy, orgasm) is linked to higher levels of sexual desire and functioning (Muise et al, 2013). Mothers report sexual rewards including intimacy and emotional closeness are reasons for wanting to engage in sexual activity with their partners in the postpartum period (Hipp et al, 2012). These approach-focused sexual motivations may be considered a positive factor associated with mothers' sexuality in the postpartum period and beyond.

Perceptions and Appraisals of Partners

In the postpartum period, women's perceptions of their partners' desire to engage in sexual activity with them is significantly related to their own sexual desire for their partner (Hipp et al., 2012). These partner-level interactions impact women's sexual functioning more than the biological outcomes of pregnancy and birth (e.g., degree of vaginal tearing; Hipp et al., 2012). Additionally, women whose partner was present at the birth of their child perceive their partners' sexual desire to be higher than women whose partner was not present (Hipp et al., 2012). This finding was associated with higher levels of dyadic sexual desire (desire for their partner) for new mothers (Hipp et al., 2012). In addition, Women's positive perceptions or appraisals of their male partners are also associated with higher levels of relationship satisfaction and have protective qualities against the negative effects of depression and low self-esteem (Sacco & Phares, 2001). Though satisfaction with the overall relationship is associated with sexual outcomes (Sprecher, 2002), more research is needed to understand how partner perceptions or appraisals impact sexual functioning for mothers and their romantic partners.

Communication

Researchers suggest that communication may be an important interpersonal skill that can protect against the negative impact of sexual desire discrepancies for parents (Ahlborg et al., 2008). Effective communication contributes to better parental adjustment to the stresses associated with having a small child (Ahlborg & Strandmark, 2006). Communication helps parents to build and maintain intimacy and preserve relationship satisfaction after the birth of their children (Ahlborg & Strandmark, 2006; Ahlborg et al., 2008). However, findings from a longitudinal study comparing communication between parents at 6 months postpartum and then again four years later, indicate that parents experience more misunderstandings as the child gets older regardless of whether or not the couple had additional children (Ahlborg et al., 2008). This report suggests that communication may impact parents' relationships differently over time.

Ahlborg and colleagues (2005) suggest that communication for new parents is an important skill for the purposes of partners recognizing the "tension" between sexual desire and the demands of a new baby. Further, positive communication (positive compliments, expressions of fondness, or affirmations) has been found to further buffer against negative relational outcomes (Shapiro et al., 2000). Among new parents, husband's communicating fondness toward their wives positively impacts relationship stability and increases satisfaction (Shapiro et al., 2000). Alternatively, expressing negativity is associated with less satisfied relationships (Shapiro et al., 2000). Among romantic couples, exchanging positive appraisals has been found to buffer against the negative impact of depression and low self-esteem on relationship satisfaction (Sacco & Phares, 2001). These communication skills are vital for preserving sexual health for

parents because becoming a parent is a significant transitional stage in one's life requiring negotiation and the expression of needs among partners (Ahlborg et al., 2005).

Intimacy and Emotional Closeness

Women endorse intimacy and closeness as rewards for engaging in sexual activity during their transition into parenthood (Hipp et al., 2012). Intimacy is also a major incentive for women in long-term relationships to engage in sexual activity with their partners (Basson, 2000) and is considered an approach sexual motivational goal that protects against severe sexual desire declines in long-term partnerships (Muisse et al, 2013).

Relevant Sexual Desire Research

Sexual desire (or libido) is defined as one's physical and psychological interest in engaging in sexual activity with a partner (Mark, 2014). According to the desire literature among the general population, sexual desire is linked to higher levels of overall relationship satisfaction (Brezsnyak & Whisman, 2004), sexual satisfaction (Santtila et al., 2007), and feelings of love (Regan, 1998) among couples. Neurological research describes sexual desire as a motivational, goal-oriented state of being that has overlapping connections and distinct differences with experiences of romantic love (Cacioppo, Bianchi-Demicheli, Frum, Pfaus, & Lewis, 2012).

Gender Differences

Though men and women share similar definitions of sexual desire, they differ significantly on their goals and objects of desire (Mark et al., 2014; Regan & Bersheid, 1996). For example, women's objects or goals of sexual desire are more connected to

love experiences than men's (Mark et al., 2014; Regan & Berscheid, 1996). Women are significantly more likely to cite love, emotional closeness, and intimacy as their object of sexual desire, whereas men are more likely to endorse sexual release, pleasure, being "turned on," and sexual activity as their object of desire (Mark et al., 2014; Meston & Buss, 2007; Regan & Berscheid, 1996).

Desire and Discrepancies in Long-Term Relationships

Men and women in long-term partnerships tend to describe sexual desire as a dynamic experience that ebbs and flows (Ridley, Cate, Collins, Reesing, Lucero, Gilson, & Almeida, 2006), which can contribute to sexual desire discrepancies (Herbenick, Mullinax, & Mark, 2014). Sexual desire discrepancies (differing levels of sexual desire among partners) are negatively related to overall relationship satisfaction (Santtila et al., 2007; Willoughby & Vitas, 2012) and sexual satisfaction (Mark & Murray, 2012) in long-term couples and impact men and women differently (Mark & Murray, 2012). For example, among romantic couples experiencing sexual desire discrepancies, men report dissatisfaction specific to sexual experiences whereas women express overall relationship dissatisfaction (Mark & Murray, 2012). Women also report lower levels of sexual desire and quality of sexual experience compared to men (Mark, 2014). However, if a woman's quality of sex increases or her partners' sexual desire increases, her levels of sexual desire also increase (Mark, 2014), suggesting unique relational influences on women's sexual desire.

Women's Desire in Long-term Partnerships

Women in long-term relationships often depict sexual desire in the context of their romantic partnerships and endorse desire in response to partner-related

stimulation or incentive (Goldhammer & McCabe, 2011). Married women with lower levels of sexual distress are more likely to report higher levels of satisfaction with their partnered emotional relationships (Bancroft, Loftus, & Long, 2002). For women, emotional relationship with a partner predicts low sexual distress levels better than sexual arousal or orgasm (Bancroft et al., 2002). In fact, women do not cite sexual desire as a strong motivator for initiating sexual activity with a partner, but increasing levels of connection with a partner and pleasing a partner are more likely reasons they initiate sex (Goldhammer & McCabe, 2011).

Cultural factors such as holding multiple roles may negatively impact women's sexual desire (McCall & Meston, 2006; Sims & Meana, 2010). For example, some women report that marriage contributes to their decline in sexual desire because the act of sex no longer leads to physical pleasure and excitement but instead introduces feelings of obligation (Sims & Meana, 2010). For some women, the over-familiarity, lack of excitement, and a dissipation of romance in their marriage contribute to their lack of sexual desire (Sims & Meana, 2010). Further, women with clinically low levels of sexual desire, are more likely to be married and/or have children than women not experiencing low sexual desire (McCall & Meston, 2006). This body of literature points to a unique connection between women with children in long-term partnerships and sexual desire. However, there are still significant gaps in the current research.

Gaps in the Current Literature on Parents

Though there has been a significant amount of research conducted on the topic of mothers' sexuality, the majority has been limited to pregnancy and the short-term postpartum period (e.g., Ahlorg et al, 2005; Chivers et al., 2011; Gokyildiz & Beji, 2005;

Khajehei et al., 2015; Klein et al., 2009; Nezhad & Goodarzi, 2011; Pastore et al., 2007). There are few studies that examine sexuality among mothers or parents with children of a variety of ages (under 18 years old) living in the home. Further, many of the studies that do conduct this research utilize samples from countries other than the United States (e.g., Ahlborg et al., 2008; Witting et al., 2008). Therefore, there is a significant gap in the literature examining sexual functioning among partnered mothers in the United States with children of varied ages living in the home.

Additionally, research that may be very pertinent to mothers' sexuality, such as the specific motivations for engaging in sexual activity among couples in intimate relationships (Impett et al., 2008), has not been applied to parents. This framework is relevant to mothers because research findings indicate that engaging in sexual behavior for certain types of motivational goals is protective against decline in sexual desire over time for couples (Impett et al., 2008). Due to the findings that sexual desire significantly declines during the transition to parenthood for mothers (e.g., Chivers et al., 2011), this framework would be useful in future research with possible clinical applications.

Another gap in the literature focused on the impact of motherhood is the lack of attention to sexuality. For example, there are multiple studies that examine the impact of children on relationships, especially marriages (e.g., Shapiro et al., 2000), but sparse research specific to sexuality constructs. As sexual well-being is significantly linked to relational outcomes (Sprecher, 2002; Mark, 2014), this is a substantial gap.

Furthermore, there are relevant gaps in methods and measurement. For example, few validated research instruments exist that measure sexual attitudes, motivations, or behaviors that are specific to motherhood with the exception of sexuality

in pregnancy (e.g, Pregnancy and Sexuality Questionnaire; Barclay, Bond, & Clark, 1992) and breastfeeding (e.g., Breastfeeding and Sexuality Instrument; Avery, Dickett, & Frantzich, 2000). Therefore, additional instruments that measure attitudes toward mothers as sexual beings and sexual experiences of women in motherhood are needed. As demonstrated, there are substantial gaps in the literature on mothers' sexuality and further research is needed to investigate this topic and apply it to the broader field of health promotion among families.

Relevant Sexual Attitudes Scale Development Literature

Due to the lack of tools that measure attitudes about mothers' sexuality, there is a need to develop and validate a scale that measures these attitudes for the purposes of investigating attitudes about mothers' sexuality as a possible risk or protective factor for sexual and relational health among couples with children or that may have children in the future. A variety of sexuality attitudes measurement tools have been created including the Sexual Dysfunctional Beliefs Questionnaire (Nobre et al., 2003). This scale included a male and female version with a variety of items encompassing sexual attitudes and beliefs presented in the literature on sexual dysfunction. To create the scale, the authors conducted a survey in a sample of community members of varying levels of sexual functioning (Nobre et al., 2003). Then, the authors compared the sexual dysfunctional beliefs among a community sample and a sample of individuals diagnosed with sexual dysfunction in a clinical setting. Utilizing this methodology to develop a scale measuring attitudes towards mothers and sexuality, a sample of couples with children and without children are required and comparisons in the

outcomes of these attitudes should be measured among couples with children and those without children.

Summary

In summary, sexual and relational outcomes among parents appear to decline on a broad scale, however there are a variety of risk and protective factors that impact this decline. In addition, these risk and protective factors impact outcomes for couples with children at the individual, couple, and cultural levels. Gaps in the current literature highlight the importance of conducting research among couples with children that emphasizes long-term relationship health with a focus on parents living in the United States. In addition, there is a need to conduct research that provides a validated tool to measure attitudes toward mothers as sexual beings and targets sexual and relational skills.

CHAPTER 3

DISSERTATION METHODS

Research Design

The current study recruited 147 mixed sex, long-term romantic couples (294 individuals) to complete a 35-minute online survey investigating risk and protective factors related to sexual desire, desire discrepancies, sexual satisfaction, relationship satisfaction, sexual rewards and costs, and infidelity. Survey questions included demographic information, psychological instruments, interpersonal skill-based instruments, and a variety of sexual and relational instruments (see below for specific measures). Participants were included in one of two groups: parent couples (93 couples who had children under the age of 18 living in the home on a full-time basis) and non-parent couples (54 couples who did not have children living in the home were also included). Specific inclusion criteria are provided below. Due to the online nature of the survey, the current study sample was a convenience sample. Participants were recruited through social media and applicable online groups. Incentives for participation were provided upon successful completion of the survey. Data analysis incorporated a structural equation model (SEM) in which individuals were nested within the couple to incorporate couple-level variables that may impact sexual and relational outcomes.

Actor-Partner Interdependence Model

The Actor-Partner Interdependence Model (APIM; Kashy & Kenny, 1999; Kenny, Kashy, & Cook, 2006) was utilized as an analytic framework to account for partner-level influences on individual-level constructs. The APIM posits that individuals within a romantic couple are part of a greater unit (the couple) and considers the impact of an

individual's independent variable on the dependent variable (actor effect) while also taking into account the way an individual's independent variable influences his/her partner's dependent variable (partner effect; Kenny et al., 2006). Therefore, data from both members of the romantic couple were collected and analyzed accordingly where individuals were nested within couples.

Study Population

Inclusion Criteria

The current study collected sexual and relational data from male and female partners within a couple. Data from 147 mixed sex (one male and one female) couples were collected. Couples were broken down into two categories: 1) parent couples ($N = 186$), of which included a female partner who was the biological mother of children living in the home full-time and, and 2) non-parent couples ($N = 108$) that had no children in the home. Other participant requirements were a relationship length of three years or more, partners living together full time, and couples were required to be sexually active (engaging in sexual activity at least once per month). The relationship length requirement was based on previous research indicating that couples with a short relationship length had more extreme reports of passionate love and after the two to four year mark, these levels of passionate love plateau (Hatfield, Pillemer, O'Brien, & Le, 2008; Hatfield, Rapson, & Martel, 2007). Couples were required to be sexually active because questions about sexual behavior were incorporated in the questionnaire that required a level of sexual engagement. Additionally, partners were required to live together on a full-time basis because there was a daily diary component of the study (outside of the scope of the dissertation) in addition to the current survey data collection

that required couples report specific interacts each day. All female partners were required to be premenopausal to alleviate menopause as a confounding variable and all mothers were required to have given birth six weeks or longer from the time of the study to adhere to medical guidelines for safe resumption of sexual activity after childbirth (Mayo Foundation for Medical Education and Research, 2016).

Additional inclusion criteria for the parent group included children under 18 years old living in the home full-time and a female partner who was the biological mother of the children. Though a variety of family structures exist in the US, the majority of children live with their biological mother and her romantic partner (Kreider & Ellis, 2011). As the current study intended to add to existing literature on mothers' sexual health that is currently concentrated on biological mothers (e.g. Chivers et al., 2011; Hipp et al., 2012), other family structures without a biological mother were not included. Additionally, even though the current study focus was on parent relationships, it was important to recruit non-parent couples for the purposes of developing a new measurement tool focused on sexual attitudes about mothers and for comparing the relationships between these attitudes to outcome variables among couples with children and couples without children.

Current Sample

The current study recruited a sample of 147 long-term (3+ years), mixed sex couples ($n = 294$) with and without children. Of these participants, 186 (63.3%) had children living in the home on a full-time basis and the majority (75.3%) were married and in monogamous relationships (97.3%). The majority of the sample was White (85.1%), heterosexual (92.9%), and college educated (67.9%). In addition, most

participants were either religiously unaffiliated (38.5%) or Christian (non-Catholic; 33.8%). The average relationship length was 9.89 years for couples with children and 5.14 years for couples without children. Among couples with children, the average age was 33 years for women and 34.8 years for men. Among couples without children, the average age was 28.3 years for men and 27.2 for women. Among couples with children, there was a median of two children with couples having no more than four children. See *Table 3.1* for additional demographic information.

Measures

In addition to the demographic information listed above, a variety of measures were utilized in the current study. Other demographic information that was collected included number of children living in the home, age, relationship length, and time since last live birth (birth of a living child). In addition, a number of instruments were used to measure sexual and relational outcomes.

Constructs Measured

Sexual desire. The Sexual Desire Inventory (*SDI*; Spector, Carey, Steinburg, 1996) was utilized to measure sexual desire. This instrument consists of 11-items that measures dyadic sexual desire (desire to engage in sexual activity with a partner) and solitary sexual desire (desire to engage sexually with oneself) on a 7-point scale. Dyadic sexual desire items consist of questions including “during the last month, how often would you have liked to engage in sexual activity with a partner?” Items in this subscale were added to create a summative score. Higher scores indicated higher levels of dyadic sexual desire or desire for one’s partner. Solitary sexual desire items consist of questions including “how strong is your desire to engage in sexual behavior by

yourself?” Items in this subscale were added to create a summative score. Higher scores indicated higher levels of solitary desire or desire to engage in sexual activity by one’s self. Evidence for reliability and validity has been published by Spector and colleagues (1996). See *Appendix A* for scale items. For the current study, the internal consistency coefficients for the dyadic subscale were 0.75 for men and 0.85 for women in couples without children and 0.70 for men and 0.76 for women. The internal consistency coefficients for the solitary subscale were 0.51 for men and 0.69 for women in couples without children and 0.42 for men and 0.61 for women in couples with children. Due to the low internal consistency for solitary desire, dyadic desire was the only subscale utilized in the current study.

Sexual desire discrepancies. Desire discrepancy scores were measured by subtracting the SDI-D score of the male participants from the SDI-D score of their female partners. A score of zero indicated no desire discrepancies between partners within the couple, positive scores indicated that men’s sexual desire was higher than women’s and negative scores indicated that women’s scores were higher than men’s.

Sexual satisfaction. Sexual satisfaction was measured utilizing the Global Measure of Sexual Satisfaction (*GMSEX*; Lawrance & Byers, 1992). This instrument measures responses to the question “overall, how would you describe your sexual relationship with your partner?” Responses are all on a 7-point scale including the following dimensions: bad/good, unpleasant/pleasant, negative/positive, unsatisfying/satisfying, worthless/valuable. Items in this scale were added to create a summative score. Higher scores indicated higher levels of sexual satisfaction. Evidence for reliability and validity of *GMSEX* and *GMREL* (listed below) has been provided from

a number of sources (e.g., Cohen, Byers, & Walsh, 2008; Byers & MacNeil, 2006; Lawrance & Byers, 1995; MacNeil & Byers, 2009). See *Appendix B* for scale items. For the current study, the internal consistency coefficients for this scale were 0.92 for men and 0.92 for women in couples without children and 0.93 for men and 0.94 for women in couples with children.

Relationship satisfaction. Relationship satisfaction was measured utilizing the Global Measure of Relationship Satisfaction (*GMREL*; Lawrance & Byers, 1995). This item measures responses to the question “In general, how would you describe your overall relationship with your partner?” Responses are on a 7-point scale including the same dimensions as listed in the GMSEX measure. Items in this scale were added to create a summative score. Higher scores indicated higher levels of relationship satisfaction. See *Appendix B* for scale items. For the current study, the internal consistency coefficients for this scale were 0.94 for men and 0.95 for women in couples without children and 0.93 for men and 0.94 for women in couples with children.

Reward/costs of sexual relationship. The degree to which the sexual relationship is rewarding or costly was measured utilizing the *Exchanges Questionnaire* (Lawrance & Byers, 1995). The GMSEX, GMREL, and Exchanges Questionnaire are all included in the Interpersonal Exchange Model of Sexual Satisfaction Questionnaire (IEMSSQ) created by Lawrance and Byers (1995). The Exchanges Questionnaire measures the degree to which participants perceive their sexual relationship as rewarding or costly and the equality of reward/costs between them and their partner. The scale includes six items total measuring 1) rewards of the sexual relationship (REW), 2) costs of the sexual relationship (CST), 3) rewards relative to one’s

expectations (CLrew), 4) costs relative to one's expectations (CLcst), and the perceived 5) equality of rewards (EQrew) and 6) equality of costs (EQcst) between oneself and one's partner. Responses are on a 9-point scale ranging from "not at all rewarding [costly]" to "extremely rewarding [costly]", "much less rewarding [costly] in comparison" to "much more rewarding [costly] in comparison", and "my rewards [costs] are much higher" to "my rewards [costs] are much higher."

The difference between one's rewards and costs or relative rewards and costs was calculated by subtracting REW – CST and CLrew – CLcst. See *Appendix C* for scale items. The current study utilized REW-CST, CLrew-CLst, EQrew, and EQcst as four separate variables, as Lawrance and Byers (1995) did in their original manuscript describing the Exchanges Questionnaire. Higher scores for REW-CST indicated higher sexual rewards compared to costs. Higher scores on CLrew-CLcst indicated that one's actual rewards compared to expected rewards were higher than one's actual costs compared to expected costs in the sexual relationship. Higher scores on EQrew indicated that individuals believe their partner has higher sexual rewards. Higher scores in EQcst indicated that individuals believe their partner has higher sexual costs.

Positive communication. Positive communication has been measured by identifying exchanges of compliments, displays of fondness or affection, and positive personal disclosure of emotions, thoughts, and opinions (Sanford, 2006; Shapiro et al., 2000). Measures were created based on the work of Sanford (2006) and Shapiro et al. (2000) to collect information on the degree to which couples receive positive communication from their partner. For example, participants were asked the following question "to what degree does your partner provide you with positive compliments?"

and responses were rated on a 7-point scale ranging from 1 = “not at all” to 7 = “very much.” The four items were added to create a summative score. Higher scores indicated higher levels of positive communication received from one’s partner. See *Appendix E* or specific items. For the current study, the internal consistency coefficients for this scale were 0.84 for men and 0.86 for women in couples without children and 0.86 for men and 0.88 for women in couples with children.

Partner appraisals. Partner appraisals were measured utilizing the Interpersonal Qualities Scale (*IQS*; Murray, Holmes, & Griffin, 1996). This scale assesses appraisals of positive and negative interpersonal attributes including “open and disclosing,” “responsive to my needs,” “understanding,” “patient,” “distant and complaining,” and “critical and judgmental.” Participants will rate their partner on each of the 23 attribute items on a 9-point scale ranging from 1 = “not at all characteristic” to 9 = “completely characteristic” (Murray et al., 1996). Items were added to create a summative score. Higher scores on this scale indicated more positive appraisals of one’s partner. See *Appendix F* for scale items. For the current study, the internal consistency coefficients for this scale were 0.90 for men and 0.92 for women in couples without children and 0.88 for men and 0.86 for women in couples with children.

Infidelity. Infidelity was measured by asking participants to answer “yes” or “no” to the following question: “In the context of your current relationship, have you ever done something sexually with someone else that could have jeopardized or hurt your current relationship?” This measure has been used in previous work examining the sexual and relational effects of infidelity (e.g., Mark, Janssen, & Milhausen, 2011).

Attitudes toward mothers as sexual beings (ATMSB). The current study developed and validated a new instrument to measure attitudes toward mothers as sexual beings based off of literature about mothers' sexuality (e.g., Friedman, Weinberg, Pines, 1998). Participants were asked questions pertaining to 12 domains of sexuality relevant to mothers including: "mothers are sexual women," "good mother/sexual woman," "value placed on sex for mothers," "sexy/body image," "sexual self-confidence," "sexual desire/interest," "masturbation," "dyadic sexual activity," "sexual fantasy," "sexual pleasure," "sexual enjoyment," and "orgasm." A sample question includes: "Compared to women in general, women who are mothers have . . ." with selections on a 7-point semantic differential scale ranging from 7 = "much more sexual desire" to 1 = "much less sexual desire." Reliability and validity of the ATMSB were assessed and reported in Chapter 4. See *Appendix H* for all items and *Appendix I* for the items that were included in the final scale.

Self-esteem. Self-esteem was measured utilizing a 10-item global Self-Esteem Scale (SES; Rosenberg, 1965). This measurement requires participants to answer questions such as "I feel that I am a person of worth, at least on an equal basis with others" utilizing a 7-point scale ranging from 1 = "strongly disagree" to 7 = "strongly agree." Items were added to create a summative score. Higher scores indicated higher levels of self-esteem. Reliability and validity of the SES has been demonstrated in a variety of countries (see Schmitt & Allik, 2005). See *Appendix G* for items. For the current study, the internal consistency coefficients for this scale were 0.87 for men and 0.86 for women in couples without children and 0.87 for men and 0.87 for women in couples with children.

Depression. Depression was measured utilizing the Beck Depression Inventory II (*BDI-II*; Beck, Steer, Ball, & Ranieri, 1996). This 21-item instrument measures severity of symptoms including sadness, loss of pleasure, irritability, and pessimism on a 4-point scale ranging from mild to severe. Items were added to create a summative score. Higher scores indicated higher levels of depressive symptomology. Reliability and validity of scale items has been previously tested (see Steer, Ball, Ranieri, & Beck 1997). See *Appendix D* for items. For the current study, the internal consistency coefficients for this scale were 0.96 for men and 0.94 for women in couples without children and 0.89 for men and 0.91 for women in couples with children.

Adverse childhood experiences (ACEs). ACEs were measured utilizing a 10-item scale created to assess experiences of childhood trauma (Felitti et al., 1998). Total ACE scores were calculated by taking the sum of all endorsed items. Next, an ordinal ACE score was created with the following categories included: 0, 1, 2, 3, and 4 or more ACEs. Scale reliability and validity have been demonstrated (see Dube et al., 2004). See *Appendix J* for items. For the current study, the internal consistency coefficients for this scale were 0.75 for men and 0.67 for women in couples without children and 0.76 for men and 0.78 for women in couples with children.

Reliability

To satisfy the statistical assumption that all constructs were measured in a reliable way, Cronbach alpha scores were calculated to measure the internal consistency of scale items. The Cronbach's alpha score ranges from zero to one and tests the degree to which each scale item measures the same construct (Tavakol & Dennick, 2011). Acceptable alpha scores range from 0.70-0.90 (Tavakol & Dennick,

2011). All measures with the exception of solitary desire were within this range or slightly above .90 indicating that there was acceptable internal consistency for all measures (Tavakol & Dennick, 2011). Solitary desire was not included as a variable of interest in the current study.

Data Collection Procedures

The University of Kentucky Institutional Review Board (IRB) approved the current study on December 8, 2016 after a full review (see *Appendix K* for approval letter). In addition, the IRB approved additional minor revisions to the study including changes to the promotional materials and an additional question asking participants if they would like to be contacted for future studies on February 6, 2017. Changes in study personnel were approved on November 1, 2017 with the addition of another individual from the UK nursing department collaborating with the primary researcher on a study outside the scope of this dissertation.

Survey Creation and Security

The current study administered an online survey through a secure online database created specifically for the study. The database was created in a secure fashion such that only the study researchers had access to the data through a unique password. Participants completing the survey were assigned a specific number for confidentiality purposes. This survey software system utilized each participants' de-identified number to generate a user specific link to complete the online survey. Once participants completed the survey, all data were stored in a password secured location. Survey data were only managed and analyzed by the proposed study primary

investigators and additional researchers hired specifically for the proposed study data analyses.

Subject Recruitment

The current study utilized social media (e.g., Facebook, Twitter), in addition to targeted recruiting techniques including posting on parent-specific pages and listservs. Recruitment also included a Public Service Announcement through a local radio station and displaying posters (see *Appendix L*) on a mid-sized university campus and in the surrounding community (e.g., cafes, Libraries). Recruitment began in February 2017 and ended in September 2017. Eligibility criteria included mixed sex couples with a relationship length of three years or more who were 18 years or older and living together. Parents were required to have at least one child under 18 years old living in the home on a full-time basis and the female partner was required to be the biological mother. All participants were required to be currently residing in the United States (US) due to recent findings that the gap between happiness among parents and non-parents in the US is significantly wider happiness in comparison to other countries (Glass, 2016).

Interested participants followed the survey link to an initial sign-in page and consent form. If a participant consented to participate, he or she created a username and password for the online database connected to the survey. When one partner in a couple completed the initial process, they were asked to provide their partners' email address and the partner was automatically sent an invitation to participate. This process connected each individual in a couple and assigned each couple a unique identification number. Participants could leave questions blank and/or discontinue the survey at any

time. Participants completed demographic information and multiple measures of sexual and relationship well-being. Upon completion of the survey, all participants received a \$10 Amazon gift card.

Data Cleaning

After data collection was complete, the data were examined for speed of survey completion, duplicate responses, missing data and errors. Due to the online nature of the survey and the incentives provided, there were multiple cases in which the survey was rapidly completed in a manner that would not have allowed the participant to read the question and answer thoughtfully. As other researchers suggest that utilizing the time a participant takes to complete a specific item of the survey (timestamp) is an important way to gauge if participants are taking the survey in a way that is meaningful (Downs, Holbrook, Sheng, & Cranor, 2010), this criterion was incorporated for the current study. Therefore, criteria for determining the necessary time a person could complete the study was identified and cases in which participants did not meet criteria were removed from the study. By comparing the timestamp of question 15 of participants who completed the survey in an expected timely manner to participants with a significantly faster timestamp, the primary researcher created a cut off mark of 20 seconds to answer survey question 15. All participants with a timestamp under 20 seconds ($n = 274$) were not included in the data set. In addition to measuring the timestamps of question 15, researchers visually examined participant passwords and removed all participants who used the same unique password multiple times due to the source of data from these cases likely being from the same individual. For example, three participants used the password "wersdf12".

Next, all missing data that were originally coded as “98” or “99” were left blank in the data set so that they would not be calculated into total scale scores. Then, a Little’s MCAR (Missing Completely at Random) test was conducted to test if the missing data were missing at random. For each variable of interest in the study (sexual desire, sexual satisfaction, relationship satisfaction, positive communication, ACE score, partner appraisal, and the components of the Exchange Model), all items for the measurement scale were tested for missingness. The results of this test indicated that the missing data for the current study were missing at random: $\chi^2(5454) = 5424, p = .61$. Therefore, missing data were left in the data set. After cleaning the data for undependable responses and assessing missingness, the data were organized by couple identification number to ensure all couples were mixed sex couples. During this process, two additional couples were removed from the study for including two partners of the same gender.

Assumptions of Statistical Tests

Assumptions of a parametric test are: 1) normally distributed data, 2) homogeneity of variance (Field, 2009) with additional assumptions for a multiple linear regression including: 3) multicollinearity, 4) independent errors, and 5) linearity (Field, 2009; Osborne & Waters, 2002).

To test the assumption of normal distribution of the data, each outcome variable of interest (dyadic desire, sexual satisfaction, relationship satisfaction, EQrew, EQcst, CLrew-CLcst, REW-CST) was tested using p-p normality plots, skewness and kurtosis results, Kolmogorov-Smirnov and Shapiro-Wilk statistics, and stem-and-leaf plot results (Field, 2009).

For women with children, the results of the Shapiro-Wilk test indicated that, dyadic desire (Shapiro-Wilk = .98, $p = .39$) and desire discrepancy (Shapiro-Wilk = .98, $p = .34$) were normally distributed and the remaining variables were not normally distributed (sexual satisfaction, relationship satisfaction, and the components of the Exchange Model). For women without children, the results of the Shapiro-Wilk test indicated that dyadic desire (Shapiro-Wilk = .99, $p = .75$) was the only variable that was normally distributed. For men with children, Shapiro-Wilk tests indicated that dyadic desire (Shapiro-Wilk = .98, $p = .17$) and desire discrepancy (Shapiro-Wilk = .98, $p = .30$) were the only variables that were normally distributed and the remaining variables were not normally distributed (sexual satisfaction, relationship satisfaction, and the components of the Exchange Model). When testing skewness and kurtosis, statistics for skewness and kurtosis were divided by their standard errors (values within ± 1.96 were considered within normal range; Field, 2009). For women and men, all values were within normal range except for sexual satisfaction and relationship satisfaction. Therefore, the assumption of normality was not completely satisfied. The current sample was a highly satisfied sample with sexual and relationship satisfaction skewed to the right.

It is common in psychological and social sciences research to have non-normal data (Blanca, Arnau, Lopez-Montiel, Bono, & Bendayan, 2013). To address the issue of non-normality, all univariate or bivariate tests in the current study were examined utilizing non-parametric tests. Therefore, Mann-Whitney U tests, Wilcoxon Signed Rank tests, and Spearman's correlations tests were conducted. All multiple linear regressions models, logistic regression models, and structural equation models were built by

including variables that were significant at the bivariate level. Additionally, for linear regression testing, statisticians believe that the assumption of normality does not affect the validity of the methods or results unless the data represent an extreme departure from normality (Lumley, Diehr, Emerson, & Chen, 2002). Therefore, though multiple of the current study sample variables did not meet criteria for the assumption of normality, by incorporating only variables that were significant at the bivariate level through non-parametric testing and considering that the current data was not an extreme departure from normality (Lumley et al., 2002), the study results were likely minimally influenced. Additionally, due to missing data present in the current study, the SEM analyses did not benefit from the “asymptotically distribution free” indicator in AMOS 24 that supports data with non-normal properties. Due to the utilization of non-normal data in SEM possibly resulting in conservative estimates of model fitness (Tomarken & Waller, 2005), there may be additional significant findings that were not captured in the current study. However, by incorporating variables that were significant at the bivariate level through non-parametric testing, and understanding that some of the outcome variables included in the study were normally distributed, the results will likely be minimally impacted.

Next, the assumption of homogeneity of variance (homoscedasticity in linear regression) was tested by conducting a Levene’s test (Field, 2009). This assumption indicates that scale scores are approximately equally distributed at various points on the predictor variable and among different groups (Field, 2009). Men and women were compared with Levene’s tests indicating that all outcome variables were not significant (satisfied the homogeneity of variance assumption) except for dyadic desire, $F(1, 272) =$

5.09, $p = .03$. This finding indicates that variances of dyadic desire were significantly different between men and women. However, the majority of the outcome variables were not significant indicating that the assumption of homogeneity of variance was satisfied for all variables except desire. Additionally, the current study conducted tests among men and women separately or within the context of the dyad to account for the interdependence between individuals in romantic partnerships and so this difference would likely not impact the results.

Assumption of multicollinearity was tested by assessing Pearson's (and Spearman's) correlations between all predictor variables in the current study. Pearson's correlation coefficients were required to be less than .80 (Field, 2009). For men and women (parents and non-parents), all correlations between predictor variables met criteria. Therefore, the assumption of multicollinearity was satisfied.

The assumption of independent errors was tested utilizing the Durbin-Watson test, a test for correlations between errors (Field, 2009). For each multiple linear regression, the Durbin-Watson test was conducted with scores lower than one and higher than three indicating that residuals were correlated (Field, 2009). When predicting dyadic desire with all predictor variables, the Durbin-Watson ranged from 1.84-2.13 among men and women with and without children. When predicting desire discrepancy, the Durbin-Watson score ranged from 2.01-2.19. When predicting sexual satisfaction, the Durbin-Watson score ranged from 1.83-2.15. When predicting relationship satisfaction, the Durbin-Watson score ranged from 1.93-2.18. Therefore, the assumption of independent errors was satisfied.

Assumption of linearity of relationships was tested utilizing normality plots and a bivariate Pearson's (and Spearman's) correlation test. All relationships between predictor variables and outcome variables placed into the multilevel linear regression models or structural equation models were significant at the bivariate level indicating linearity. Additionally, Pearson's and Spearman's correlation coefficients produced identical results and normality plots were analyzed for linearity indicating the relationships between predictor variables and outcome variables were linear. Therefore, the assumption of linearity was sufficiently satisfied for the current study.

For Structural Equation Modeling (SEM), there is an assumption of no missing data (Donaldson, 2001). However, there is an indicator in AMOS 24 called "Estimate means and intercepts" when building the model that provides estimates for missing data. Therefore, this indicator was incorporated into all SEM models in the current study. Additionally, in SEM, there is an assumption of normality. As the previous results indicated that this assumption was not fully met, only variables that were significant at the bivariate level were incorporated into the SEM. All other assumptions for SEM have been discussed.

Data Analysis

Scale Development

To develop a scale that measures ATMSB, items were created utilizing the limited literature on attitudes toward mothers' sexuality (Friedman et al., 1998) and sexual experiences reported by mothers in qualitative research (e.g., Trice-Black, 2010). This initial list of items was sent to a panel of experts in the field of sexuality research that are familiar with research pertaining to mothers and sexuality. These

individuals assessed the items for content and key missing elements in addition to examining the ways in which the items were worded in order to assess if they were easy to understand and measuring what they were meant to be measuring. Feedback from each expert ($n = 5$) was incorporated and a list of 47 items was developed for testing. See *Appendix H* for a full list of items. The items were included in the study questionnaire taken by mixed sex romantic couples (with and without children). An Exploratory Factor Analysis was conducted. See Chapter 4 for details of the scale development.

Preliminary Analyses

Given that the current study sample did not fully meet the normality assumption, non-parametric testing was conducted at the univariate and bivariate levels. To assess differences in ATMSB between couples with children and couples without children, a Mann-Whitney U test was conducted with men and women separately. When working with couples' data, it was important to consider the interdependence between partners in the couple and therefore, analyses must be conducted by separating the data by gender (Kenny & Cook, 1999). Among couples with children, Wilcoxon Signed Rank tests were conducted to determine if there were differences in ACE scores, sexual rewards and costs, sexual desire, sexual satisfaction, and relationship satisfaction between men and women on a dyadic level. The current study collected data from both partners in the couple and utilized the Actor Partner Interdependence Model (APIM; Kenny & Cook, 1999) as an analytical framework to account for couple-level impact on individual-level variables.

Bivariate Analyses

Then, the data were analyzed by conducting Spearman's Rho bivariate correlations between sexual desire, desire discrepancies, sexual satisfaction, relationship satisfaction, components of the sexual exchange model (e.g., EQrew, EQcst, REW-CST, CLrew-CLcst), ATMSB and subscales, ACEs, positive communication, partner appraisals, contextual variables (e.g., relationship length, age, number of children, time since last birth), and possible confounders (e.g., depression, self-esteem) among men and women separately due to partner-level influences on individual-level sexual experiences, it was necessary to first analyze these correlations separately to alleviate the influence of partner-effects on individual outcomes as a confounding variable (Kenny & Cook, 1999).

Multivariate Analyses

Next, a series of multiple linear regression models were conducted among men and women separately with predictor variables including ACE scores, ATMSB and subscales, positive communication, partner appraisals, and sexual rewards/costs measures and outcome variables including sexual satisfaction, sexual desire, desire discrepancies, relationship satisfaction and components of the sexual exchange model (e.g., EQrew, EQcst, REW-CST, CLrew-CLcst) after controlling for significant demographic variables and confounding variables. Taking into consideration the non-normality of some variables in the data set, by incorporating only variables that were significant at the bivariate level through non-parametric testing and considering that researchers report only extreme departures from normality may impact study results of a multiple linear regression model (Lumley et al., 2002), the study results were likely minimally influenced. Additionally, a logistic regression model was conducted to predict

infidelity (dichotomous variable) after obtaining significance at the bivariate level through non-parametric testing. Based on significant correlations at the bivariate level through non-parametric testing, nested structural equation models (SEM) were conducted using AMOS 24 to examine partner effects between outcome variables of interest (dyadic desire, solitary desire, sexual satisfaction, relationship satisfaction, REW-CST, CLrew-CLcst, EQrew, EQcst) and predictor variables of interest (positive communication, partner appraisals, REW-CST, CLrew-CLcst, EQrew, EQcst, ACE score, ATMSB subscales) that were significantly correlated at the bivariate level. SEM were utilized due to a lack of availability of non-parametric testing program options at the dyadic level.

Table 3.1. Participant demographics

Characteristic	Couples without children		Couples with children	
	Men (<i>n</i> = 54)	Women (<i>n</i> = 54)	Men (<i>n</i> = 93)	Women (<i>n</i> = 93)
Relationship Status				
Married and cohabitating	31(57.4)	31(57.4)	79(84.9)	80(86)
Partnered and cohabitating	23(42.6)	23(42.6)	14(15.1)	13(14)
Relationship Type				
Monogamous	54(100)	54(100)	89(95.7)	89(95.7)
Consensually non-monogamous	0	0	4(4.3)	4(4.3)
Race/Ethnicity				
African American	4(7.4)	3(5.6)	5(5.4)	3(3.2)
Asian/Asian American	3(5.6)	4(7.4)	0	2(2.2)
Hispanic	0	0	0	3(3.2)
Native American	3(5.6)	2(3.7)	4(4.3)	5(5.4)
White	43(79.6)	45(83.3)	84(90.3)	80(86)
Other	1(1.9)	0	0	0
Sexual Orientation				
Heterosexual	54(100)	50(92.6)	90(96.8)	80(86)
Bisexual	0	3(5.6)	3(3.2)	7(7.5)
Pansexual	0	0	0	5(5.4)
Unsure/Questioning	0	1(1.9)	0	1(1.1)
Education				
Grade school	2(3.7)	0	0	0
Some high school	0	0	2 (2.2)	0
High school graduate	4(7.4)	5(9.3)	9(9.7)	5(5.4)
Some college/2-year degree	11(20.4)	16(29.6)	18(19.4)	21(22.6)
Bachelor's degree	32(59.3)	20(37)	38(40.9)	39(41.9)
Graduate degree	5(9.3)	13(24.1)	24(25.8)	28(30.1)
Other	0	0	2(2.2)	0
Student Status				
Yes, Undergraduate	7(13)	6(11.1)	1(1.1)	4(4.3)
Yes, Graduate	3(5.6)	9(16.7)	2(2.2)	6(6.5)
No	44(81.5)	38(70.4)	90(96.8)	83(89.2)
Religious Affiliation				
Christian (non-Catholic)	15(27.8)	14(25.9)	35(37.6)	34(36.6)
Catholic	9(16.7)	7(13)	9(9.7)	11(11.8)
Mormon	0	0	1(1.1)	0
Jehovah's Witness	0	0	0	1(1.1)
Unaffiliated	21(38.9)	25(46.3)	37(39.8)	31(33.3)
Atheist	1(1.9)	0	5(5.4)	4(4.3)
Other	2(3.7)	0	2(2.2)	6(6.5)
Mean age	28.3 years	27.2 years	34.8 years	33 years
Mean relationship length	5.14 years	5.14 years	9.89 years	9.89 years

Table 3.2. Data collection timeline

Activity	Timeline
Grant Funding Proposal Approved by the Patty Brisben Foundation	March 2016
Study proposed to and approved by doctoral committee	September 2016
First progress report was submitted to the Patty Brisben Foundation	September 2016
Study was approved by IRB	December 2016
Second progress report was submitted to the Patty Brisben Foundation	November 2016
Recruitment for study began	January 2017
Data collection began	February 2017
Third progress report was submitted to the Patty Brisben Foundation	August 2017
Data collection was complete	October 2017
Fourth progress report was submitted to the Patty Brisben Foundation	November 2017
Fifth progress report was submitted to the Patty Brisben Foundation	February 2018

CHAPTER 4

Manuscript 1: Attitudes toward mothers as sexual beings (ATMSB) scale development and impact on sexual desire, desire discrepancies, and satisfaction among couples with children

Primary proposed journal: *Journal of Sex Research*

Secondary proposed journal: *Archives of Sexual Behavior*

Abstract

Societal messages about mothers indicate an incompatibility between motherhood and sexuality. In general, negative sexual attitudes impact overall sexual functioning among men and women. Therefore, attitudes toward mothers as sexual beings (ATMSB) likely impact sexual outcomes for couples with or without children. However, there are no measurement tools to assess these beliefs. Therefore, the aim of the current study was to 1) develop a reliable tool to measure ATMSB and 2) to examine differences in ATMSB among individuals with children and those without children, 3) to investigate the impact of ATMSB on sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction among couples with children and those without children. The study included 147 long-term, mixed sex couples ($N = 294$), of which 93 were parents and 54 were not parents. ATMSB scale items were developed and an exploratory factor analysis was conducted yielding the following three scale factors: 1) Quality of Motherhood and Sexuality (QMS), 2) Mothers' Sexual Functioning (MSF), 3) Mothers' Sexual Pleasure and Enjoyment (MSPE). Next, a series of multiple linear regression models and structural equation models were conducted to assess the relationships between ATMSB subscales and sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction among couples with children and those without children. Results indicated that among couples with children, the MSF subscale was significantly associated with sexual satisfaction for women and the MSPE subscale scores were significantly associated with sexual and relationship satisfaction for men and relationship satisfaction for women. Among couples without children, QMS subscale was associated with desire discrepancy for women and the MSPE was associated with higher levels of relationship satisfaction for men and sexual satisfaction for women. However, the MSF subscale was negatively associated with relationship satisfaction for women without children. At the couple-level, for couples with children, higher full ATMSB scale scores were associated with partner effects for men's scores predicting higher levels of women's dyadic desire and sexual satisfaction and actor effects predicting higher levels of sexual satisfaction for men. the MSF subscale was positively associated with partner effects for men's subscale scores predicting women's dyadic desire and sexual satisfaction and actor effects for men's relationship satisfaction. The MSPE subscale was positively associated with full actor and partner effects for relationship satisfaction and full partner effects and partial actor effects (men) for sexual satisfaction among men and women. For non-parents, the QMS subscale was associated with full positive actor effects among men and women and partner effects for women's QMS scores predicting higher levels of men's desire. However, women's MSF scores were negatively associated with relationship satisfaction among women without children and their male partners. Clinical implications for working with parenting couples are discussed.

Key words: Parents, Mothers, Sexuality, Attitudes, Beliefs, Desire, Satisfaction

Attitudes toward mothers as sexual beings (ATMSB) scale development and impact on sexual desire, desire discrepancies, and satisfaction among couples with children

Introduction

Cultural and societal contexts of women's sexuality and the implications when conceptualizing sexual behaviors and outcomes are crucial considerations in sexuality research (Basson, 2002; Peplau & Garnets, 2000; Tiefer, 2004). The societal and cultural messaging about the sexuality of women who are mothers creates a dichotomy in which good mothers are not perceived as sexual beings and sexual women are not perceived as good mothers (Friedman, Weinberg, & Pines, 1998). Further, these attitudes about sexuality may impact overall sexual desire and functioning for both men and women (e.g., Nobre & Pinto-Gouveia, 2006). Due to reports that parents experience significant sexual problems (Pastore, Owens, & Raymond, 2007; Risch, Riley, & Lawler, 2003), this is an important line of research. However, there are no existing tools for measuring these attitudes about mothers' sexuality. Therefore, the current study aimed to develop a useful tool for measuring Attitudes Towards Mothers as Sexual Beings (ATMSB), to compare the ATMSB among individuals with children and individuals without children, and then to investigate the relationships between ATMSB and sexual desire, desire discrepancies, and satisfaction in long-term romantic relationships among couples with and without children.

Sexual Relationships Between Mothers and Their Romantic Partners

The majority of research on mothers' sexuality focuses on pregnancy, childbirth, and the immediate postpartum period (<1 year) from a primarily biological perspective (Ahlgren et al, 2005; Chivers et al., 2011; Gokyildiz & Beji, 2005; Jawed-Wessel &

Sevick, 2017; Khajehei et al., 2015; Klein et al., 2009; Nezhad & Goodarzi, 2011; Pastore et al., 2007; Trice-Black, 2010). However, psychological, interpersonal, and cultural factors also impact sexuality among women who are mothers (Jawed-Wessel & Sevick, 2017). For example, women report struggling to view themselves as sexual beings after transitioning into motherhood (Sims & Meana, 2010; Trice-Black, 2010). Additionally, mothers struggle with maintaining their sexual desire and relationship satisfaction in comparison to fathers and non-parents (Botros, Abromov, Miller, Sand, Gandhi, Nickolov, Goldbert, 2006; Shapiro, Gottman, & Carreere, 2000; Witting et al., 2008).

When mothers experience sexual problems, low sexual desire is the most common issue of concern (Khajehei et al., 2015). This negative impact on mothers' sexual desire may be due to difficulty viewing themselves distinctively in a sexual manner beyond the scope of their roles as wives and mothers (Sims & Meana, 2010; Trice-Black, 2010). This may be because mothers struggle with new bodies after giving birth and experience issues with conceptualizing their bodies as sexual due to new uses for previously "sexual" parts such as breasts (Trice-Black, 2010). Women also endorse weight gain and low self-esteem as factors impacting sexual desire after becoming mothers (Kline, Martin, & Deyo, 1998). Additionally, there are practical reasons women report difficulty maintaining their sense of sexuality, such as struggling to purchase undergarments for breastfeeding that make them feel sexy (Campo, 2010).

Both mothers and fathers in the United States report experiencing difficulty balancing the needs of their families with their romantic relationships (Risch et al., 2003). Parents struggle to achieve the level of sexual activity they desire and report

high levels of desire discrepancies (differences in levels of sexual desire among partners; Pastore et al., 2007; Risch et al., 2003). In one study with parents of young children, fathers reported wanting to engage in sexual activity twice per week whereas mothers report desiring sexual activity twice per month (Ahlborg et al., 2008), indicating a stark difference in desired level of sexual activity among parenting partners. Among couples in general, desire discrepancies are linked to relationship satisfaction and overall relationship stability among partners, indicating a couple-level impact on relationship health (Mark, 2012; Willoughby, Farero, & Busby, 2014).

Mothers describe feeling as though they must keep their male partners sexually satisfied by engaging in short sexual encounters more often, faking orgasms, or “rallying” when not particularly in the mood. (Trice-Black, 2010). Women who are mothers often describe the pressure to be the “perfect mother” while also being the “perfect wife” including performing sexually to please their partners (Trice-Black, 2010). They also describe their sexuality in the context of their relational roles as wives and mothers, citing a lack of concrete boundaries between their own identity and the identity of their children (Sims & Meana, 2010; Trice-Black, 2010). Mothers not only describe their sexuality in the context of themselves, but also interpersonally within the family setting and in the broader societal/cultural context (Sims & Meana, 2010; Trice-Black, 2010). Therefore, understanding the implications of attitudes toward the sexuality of mothers on individual sexual outcomes may be an important aspect of overall relational health among mothers and their romantic partners.

Mother’s Sexuality and Society

Historically, women's identities have been defined by their roles as wives and mothers (Rust, 2000). Women are often portrayed by the media as wives and mothers and as mothers, they are often either "good" or "bad" mothers (Gauntlett, 2002). Motherhood and sexuality are culturally constructed as incompatible (Kleinplatz, 2001). Kleinplatz (2001) suggests that our society conceptualizes the transition to motherhood (e.g., pregnancy, childbirth, and breastfeeding) into medical problems that must be controlled and fixed while in the process, "de-sexualizing" motherhood and the events that take place during this transitional period.

Friedman et al. (1998) report that the more a woman is perceived as sexual, the less likely both men and women are to perceive her as a good, caring mother. Friedman and colleagues (1998) asked participants to openly write a story about a fictional woman of whom they read a short description. Participants included inferences about the character's motherhood status based on the description of her sexuality. The majority of the individuals who read about a hypothetical "highly sexual" woman specifically indicated that she was not a mother (Friedman et al., 1998). In addition, many participants also perceived the "highly sexual" woman as unmarried (Friedman et al., 1998), indicating perceptions that sexual women are incapable of contributing to the valued societal roles of mother and wife.

Furthermore, there are real implications for women who experience sexual pleasure in the context of motherhood. Kleinplatz (2001) reports a non-fictional story about a woman who called a local community information hotline with questions about her experiences with sexual arousal during breastfeeding. The woman was charged with child abuse and her daughter was removed from her custody for over one year

(Kleinplatz, 2001). It was not until a professional breastfeeding organization testified that sexual arousal was a normal part of breastfeeding, the woman was released from criminal charges and her family was restored (Kleinplatz, 2001). This story promotes sexual shame among mothers and secrecy from talking about their sexual experiences. Further, this example highlights the degree to which society communicates that mothers lack a sexual aspect of their identity (Kleinplatz, 2001).

Many women internally construct their sexual identities differently after transitioning into motherhood (Trice-Black, 2010). Mothers are concerned about their body image and overall sexual appeal and experience difficulty addressing these concerns in their situations as mothers (Sims & Meana, 2010; Trice-Black, 2010). Many women report that their role as a mother is a strong part of their identity (Trice-Black, 2010), and therefore likely to impact their sexual and relational well-being.

Research on the relationship between internalized negative messages about sexual minority identities indicates that the more one internalizes negative beliefs about themselves, the more likely they will experience sexual dissatisfaction and lower levels of healthy sexual skills (Berg, Weatherburn, Ross, & Schmidt, 2015). In parallel, mothers with negative beliefs about motherhood and sexuality may also exhibit lower levels of sexual health outcomes. These internalized messages have also been found to negatively impact relationship quality among romantic partners (Balsam & Szymanski, 2005), indicating a couple-level effect of negative sexual beliefs on sexual outcomes. However, more research is needed to understand how these attitudes impact individuals and couples with children.

Impact of Sexual Attitudes on Sexual Outcomes Among the General Population

Beliefs about sexuality play an important role in sexual functioning for the general population (Nobre & Pinto-Gouveia, 2006) and as cultural messages significantly impact individual beliefs (Oreg & Katz-Gerro, 2006), this is an important area to consider when addressing sexual outcomes. In a study examining sexual beliefs and sexual dysfunction among men and women (with or without children), negative beliefs about women's sexuality including beliefs that sexual desire is "sinful" or that older women have no sexual desire, contributed to whether or not a woman met diagnostic criteria for sexual dysfunction (Nobre & Pinto-Gouveia, 2006). Women who believe that physical appearance is the key for satisfying sexual relationships are more likely to experience problems with sexual functioning compared to women who do not hold that belief (Nobre & Pinto-Gouveia, 2006). Mothers may be more vulnerable to this phenomenon due to their reported difficulties with their appearances after giving birth (Kline et al., 1998). However, there is currently no literature examining differences in sexual beliefs between women with children and women without children.

For men in the general population, beliefs about men as "macho" and beliefs about the necessity for penile/vaginal intercourse to satisfy women may also contribute to sexual dysfunction (Nobre & Pinto-Gouveia, 2006). For parents, the ways in which individuals perceive the equality of sexual costs in their relationship has been reported to have a stronger impact on their satisfaction in comparison to non-parents (Lawrance & Byers, 1995). However, the authors of this study described these findings as anecdotal and in need of further investigation (Lawrance & Byers, 1995). Taken together, sexuality attitudes impact sexual outcomes in the general population and may impact parents to a stronger degree, but more research is needed to understand the

differences between sexuality attitudes among couples with children and couples without children. This is especially pertinent for long-term, mixed sex couples without children because some may be interested in becoming parents in the future due to the low percentages of women in the United States between the ages of 40-44 who have not given birth to a child (15%; Livingston, 2015). Therefore, understanding the attitudes partners have about sexuality and motherhood may provide a protective quality for sexuality when transitioning into parenthood for these couples. Additionally, there is a wider gap in well-being among parents and non-parents in the United States (US) in comparison to other countries (Glass, 2016). Understanding how ATMSB impact satisfaction in the context of couples living in the US, may be an important area for consideration when promoting well-being among couples with children or considering planning for children in the future.

As a whole, the current study aimed to 1) develop and validate a tool to measure ATMSB among a sample of romantic couples, 2) to assess the differences in ATMSB among couples with children and couples without children, and 3) to investigate the impact of ATMSB on sexual desire, desire discrepancies, relationship satisfaction, and sexual satisfaction among couples with children and couples without children.

The following research questions were addressed:

RQ1: Are the Attitudes Towards Mothers as Sexual Beings (ATMSB) scale and subscales reliable for testing ATMSB among individuals in romantic couples?

RQ2: Are there differences in ATMSB and subscale scores between individuals in couples with children and couples without children?

RQ3: Are Attitudes Towards Mothers as Sexual Beings (ATMSB) and specific subscales associated with sexual desire among partnered men and women with children and those without children?

RQ4: Are ATMSB and specific subscales associated with sexual desire discrepancies among partnered men and women with children and those without children?

RQ5: Are ATMSB and specific subscales associated with relationship satisfaction among partnered men and women with children and those without children?

RQ6: Are ATMSB and specific subscales associated with sexual satisfaction among partnered men and women with children and those without children?

RQ7: Are individuals' ATMSB and subscale scores associated with their partners' dyadic sexual desire in the context of partnered men and women with children and those without children?

RQ8: Are individuals' ATMSB and subscale scores associated with their partners' sexual satisfaction in the context of partnered men and women with children and those without children?

RQ9: Are individuals' ATMSB and subscale scores associated with their partners' relationship satisfaction in the context of partnered men and women with children and those without children?

Scale Development Methods

Participants

Participants for the current study included a sample of 147 long-term (3+ years), mixed sex couples ($n = 294$) with and without children in order to capture a more

general understanding of attitudes toward mothers as sexual beings among adults. Of these participants, 186 (63.3%) had children living in the home on a full-time basis and the majority (75.3%) were married and in monogamous relationships (97.3%). The majority of the sample was White (85.1%), heterosexual (92.9%), college educated (67.9%) and all currently living in the US. In addition, participants endorsed religiously unaffiliated (38.5%) and Christian (non-Catholic; 33.8%) the most in terms of religious practices. The average relationship length was 9.89 years for couples with children and 5.14 years for couples without children. Among couples with children, the average age was 33 years for women and 34.8 years for men. Among couples without children, the average age was 28.3 years for men and 27.2 for women. Among couples with children, the number of children ranged from 1 to 4 children with the majority reporting 1 or 2 children (78.5%). See *Table 1* for demographics of study participants.

Procedure

The current study recruited participants who were at least 18 years old, in long-term (3+ years), mixed sex romantic partnerships living in the US. If the couple reported having children, inclusion criteria required that the children be under 18 years old living in the home on a full-time basis. Additionally, women with children were required to be the biological mother and at least six weeks postpartum to adhere to the medical recommendations associated with resuming sexual activity after childbirth (Mayo Foundation for Medical Education and Research, 2016). Other inclusion criteria for all female participants required women to be premenopausal to alleviate the possible confounding variable of impact of menopause on sexual outcomes.

Recruitment began in February of 2017 and continued until September 2017. The current study utilized social media (e.g., Twitter, Facebook), parenting listservs, a local radio station Public Service Announcement, in addition to hanging posters on a mid-sized university campus and the surrounding community to recruit participants. Individuals interested in participating in the study followed an initial link to a description of the study followed by a consent form. After consenting to complete the survey, participants were taken to the first page of the questionnaire in which they were able to complete in the privacy of their home. Participants could skip questions and stop the survey at any time. After a participant was finished completing the survey, they were asked to provide their partners' email address and an email was automatically sent to their partner to complete the survey. This way, partners were linked together by a unique couple ID. Upon completion of the survey, participants received a \$10 Amazon gift card.

Scale development procedure. For the Attitudes Towards Mothers as Sexual Beings (ATMSB) scale development part of the study, an initial list of items was created based on the limited literature on attitudes about mothers and sexuality among the general population (Friedman et al., 1998) and mothers' qualitative reports of their sexuality and sense of themselves as sexual beings in the context of motherhood (e.g., Trice-Black, 2010). In this literature, highly sexual women who are mothers are described as "bad" mothers (Friedman et al., 1998), women report that they have trouble viewing themselves as sexy or a sexual being (Trice-Black, 2010), and women report participating in sexual activity to pleasure their partners (Sims & Meana, 2010). Therefore, items were originally created to assess attitudes toward aspects of sexuality

based on this literature including mothers' levels of sexual desire, sexual confidence, likelihood of engaging in partnered or solitary sexual activity, likelihood of experiencing sexual fantasies, and degree of sexual pleasure they experience. Then, the list of items was sent to a panel of sexuality research experts ($n = 5$) who had an understanding of mothers and sexuality research. The panel of experts assessed the items in terms of content (looking for what might be missing) and also for the clarity in wording (to ensure participants understand the question). Feedback from each expert was incorporated into changes and additions to the original scale resulting in 47 items. Items measured attitudes about mothers' quality of mothering in relation to their sexuality, quality of sexual functioning, types of sexual behaviors mothers are likely to engage in, the degree of sexiness among mothers, and degree to which mothers experience pleasure. See *Appendix H* for a complete list of items.

The scale included a semantic differential structure in which participants were asked to rate their response to an item (e.g., "women who are mothers are. . .") on a seven-point scale ranging from one extreme to the next (e.g., "not at all sexual" to "extremely sexual"). Participants were also asked to compare mothers to "women in general" on a seven-point scale ranging from having much more or much less sexual desire/sexual interest/etc. Items were included in an online survey as part of a larger study among romantic couples.

Scale development extraction criteria. After study recruitment was complete, an exploratory factor analysis (EFA) was performed using principle factor extraction of the 47 items created in the scale development process using a varimax rotation. Criteria that have been applied by other researchers developing similar scales (e.g., Sakuluk,

Todd, Milhausen, Lachowsky, & Undergraduate Research Group in Sexuality, 2014) were utilized in the current study as item deletion criteria including the following: 1) items with communalities lower than .30, 2) items with factor loadings lower than .40 or higher than 1, and 3) items loading on two factors at .40 or higher. These criteria were applied until there were interpretable factors present.

Scale Development Results

The initial factor analysis yielded seven factors making up 71.39% of the variance. However, sixteen items loaded on two factors at .40 or higher and were deleted. The second and third factor analyses yielded an additional eight items that loaded on two factors at .40 or higher and were deleted. Finally, the factor analysis yielded four factors making up 71.9% of the variance. After analyzing the scree plot, the fourth factor was removed for being positioned after the scree, indicating the fourth factor was positioned after the point of inflexion in the data (Field, 2009). Utilizing the scree as decision-making criteria has been reported reliable criterion for samples larger than 200 and is therefore a useful tool in the current study (Field, 2009). In addition, two items were deleted due to inconsistencies with all other items on the given factor. For example, all but one item that loaded onto Factor 1 measured beliefs about the quality of mothering in relation to a woman's sexuality.

The result of the final EFA were three factors including seventeen items with a Kaiser-Meyer-Olkin Measure of .89 making up 73.25% of the variance. Factors included the following: 1) Quality of Mothering and Sexuality, 2) Mothers' Sexual Functioning, and 3) Mothers' Sexual Pleasure and Enjoyment. See *Table 2* for specific items and factor loadings.

Factor 1: Quality of Mothering and Sexuality

Factor one consisted of six items encompassing attitudes about the quality of mothering as it is related to a woman being “sexy” or “sexual.” Items included “sexy [or sexual] women who are mothers” being rated as “bad/good,” “irresponsible/responsible,” and “ineffective/effective” mothers. High scores on these items indicated a perspective that mothers can be both sexy and/or sexual while also good, responsible, and/or effective mothers. The Cronbach’s alpha for Factor 1 was .97 for men with children, .96 for women with children, .92 for women without children and .95 for men without children indicating good internal consistency overall.

Factor 2: Mothers’ Sexual Functioning

Factor two included seven items pertaining to attitudes about mothers’ levels of sexual desire, sexual interest, sexual fantasies, and partnered sexual activity. Five of the seven items were worded to capture attitudes about mothers in comparison to “women in general.” Respondents rated responses to these questions in terms of “more” or “less” sexual desire, sexual interest, or likelihood of engaging in sexual activity in comparison to women in general. The additional two items asked respondents to rate the degree to which women who are mothers engage in sexual activity and experience sexual fantasies. High scores on this factor indicate attitudes about mothers as having high levels of sexual functioning in comparison to women in general. The Cronbach’s alpha score for Factor 2 was .91 for men with children, .91 for women with children, .95 for men without children, and .90 for women without children indicating good internal consistency.

Factor 3: Mothers’ Sexual Pleasure and Enjoyment

Factor three consisted of four items encompassing attitudes about mothers' having sexual experiences that are pleasurable or enjoyable. All items in this factor were worded to ask attitudes about the degree to which "women who are mothers" experience sexual pleasure and sexual enjoyment in various contexts (e.g., partnered activity, orgasms). High scores on this factor indicate attitudes about mothers as experiencing high levels of sexual pleasure and enjoyment. The Cronbach's alpha score for Factor 3 was .87 for men with children, .86 for women with children, .78 for men without children, and .84 for women without children indicating good internal consistency.

Examining Impact of ATMSB on Sexual and Relational Outcomes

Measures

The current study collected demographic information and the ATMSB scale items in addition to measures of sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction. Additionally, information about possible confounders was collected including measures for depression and self-esteem, age, relationship length, time since last birth, and number of children.

Attitudes Towards Mothers as Sexual Beings. The ATMSB scale was utilized to measure attitudes individuals have pertaining to the sexuality of women who are mothers. This instrument consists of 17 items that measure attitudes about sexuality among mothers with the following three subscales: 1) Quality of Mothering and Sexuality (QMS), 2) Mothers' Sexual Functioning (MSF), 3) Mothers' Sexual Pleasure and Enjoyment (MSPE). This scale includes questions about "women who are mothers" and their sexual desire, sexual interest, sexual fantasies, sexual pleasure, and ability to

be good/effective/responsible mothers while also sexy or sexual. Questions asked about mothers directly or in comparison to “women in general” and each item was rated on a 7-point semantic differential scale. Higher scores indicate more positive attitudes towards mothers’ sexuality. For a full set of scale items, see *Appendix I*.

The Cronbach’s alpha scores of the ATMSB scale were .94 for men and .91 for women without children and .92 for men and .92 for women with children. For the Quality of Mothering and Sexuality (QMS) subscale, Cronbach’s alpha scores were .95 for men and .92 for women without children and .97 for men and .96 for women with children. For the Mothers’ Sexual Functioning (MSF) subscale, Cronbach’s alpha scores were .95 for men and .90 for women without children and .91 for women .91 for men with children. For the Mothers’ Sexual Pleasure and Enjoyment (MSPE) subscale, Cronbach’s alpha scores were .78 for men and .84 for women without children and .86 for women and .87 for men with children. .

Sexual desire. The Sexual Desire Inventory (*SDI*; Spector, Carey, Steinburg, 1996) was utilized to measure sexual desire. This instrument consists of 11-items that measures dyadic sexual desire (*SDI-D*; desire to engage in sexual activity with a partner) and solitary sexual desire (*SDI-S*; desire to engage sexually with oneself) on a 7-point scale. The current study utilized the dyadic sexual desire subscale measuring one’s sexual desire for his/her partner. Higher scores indicate higher levels of dyadic sexual desire. Evidence for reliability and validity has been published by Spector and colleagues (1996). See *Appendix A* for scale items. For the current study, the internal consistency coefficients for the dyadic subscale were 0.75 for men and 0.85 for women

in couples without children and 0.70 for men and 0.76 for women in couples with children.

Sexual desire discrepancies. Desire discrepancy scores were measured by subtracting the SDI-D score of the male participants from the SDI-D score of their female partners. Positive scores indicated higher desire for men and negative scores indicated higher desire for women in the couple. A score of zero indicated no desire discrepancy was present in the couple.

Sexual satisfaction. Sexual satisfaction was measured utilizing the Global Measure of Sexual Satisfaction (*GMSEX*; Lawrance & Byers, 1992). This instrument measures one's sexual satisfaction with a partner with responses are on a 7-point scale including the following dimensions: bad/good, unpleasant/pleasant, negative/positive, unsatisfying/satisfying, worthless/valuable. High scores on this scale indicate high levels of sexual satisfaction. Evidence for reliability and validity of *GMSEX* has been provided from a number of sources (e.g., Cohen, 2008; Byers & MacNeil, 2006; Lawrance & Byers, 1995; MacNeil & Byers, 2009; Mark, Herbenick, Fortenberry, Sanders, & Reece, 2014) and the current sample Cronbach's alpha were 0.92 for men and 0.92 for women in couples without children and 0.93 for men and 0.94 for women in couples with children. See *Appendix B* for scale items.

Relationship satisfaction. Relationship satisfaction was measured utilizing the Global Measure of Relationship Satisfaction (*GMREL*; Lawrance & Byers, 1995). This item measures responses to the question "In general, how would you describe your overall relationship with your partner?" Responses are on a 7-point scale including the following dimensions: bad/good, unpleasant/pleasant, negative/positive,

unsatisfying/satisfying, worthless/valuable. High scores on this scale indicate high levels of relationship satisfaction. See *Appendix B* for scale items. For the current study, the internal consistency coefficients for this scale were 0.94 for men and 0.95 for women in couples without children and 0.93 for men and 0.94 for women in couples with children.

Depression. Depression was measured utilizing the Beck Depression Inventory II (*BDI-II*; Beck, Steer, Ball, & Ranieri, 1996). This 21-item instrument measures severity of symptoms including sadness, loss of pleasure, irritability, and pessimism on a 4-point scale ranging from mild to severe. High scores on this scale indicate high levels of depressive symptoms. Reliability and validity of scale items has been previously tested (see Steer, Ball, Ranieri, & Beck 1997). See *Appendix D* for items. For the current study, the internal consistency coefficients for this scale were 0.96 for men and 0.94 for women in couples without children and 0.89 for men and 0.91 for women in couples with children.

Self-esteem. Self-esteem was measured utilizing a 10-item global Self-Esteem Scale (*SES*; Rosenberg, 1965). This measurement requires participants to answer questions about their feelings of self-worth utilizing a 7-point scale ranging from 1 = “strongly disagree” to 7 = “strongly agree”. High scores on this scale indicate high levels of self-esteem. Reliability and validity of the SES has been demonstrated in a variety of countries (see Schmitt & Allik, 2005). See *Appendix G* for items. For the current study, the internal consistency coefficients for this scale were 0.87 for men and 0.86 for women in couples without children and 0.87 for men and 0.87 for women in couples with children.

Data Analysis

Due to the lack of normal distribution of the data, non-parametric testing was conducted at the univariate and bivariate levels. To assess differences in ATMSB between couples with children and couples without children, a Mann-Whitney U test was conducted. Next, Spearman's Rho correlations were conducted to assess significant correlations between ATMSB scores and subscales and sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction among couples with children. Bivariate correlations included variables that would possibly impact sexual or relational outcomes (age, relationship length, number of children, depression, self-esteem) in order to control for significant contextual variables at the multivariate level.

Next, a series of multiple linear regression models were conducted among women and men separately to assess what variables were predicted by ATMSB scores and subscales after controlling for relevant contextual factors. By incorporating only variables that were significant at the bivariate level through non-parametric testing and considering that statisticians report that only extreme departures from normality may impact study results (more (Lumley, Diehr, Emerson, & Chen, 2002), multiple linear regression models were a sufficient means of conducting testing to see how ATMSB impact sexual outcomes among men and women with children. Finally, a structural equation model was conducted in which individuals were nested within the couple with ATMSB predicting sexual desire, sexual satisfaction, and relationship satisfaction to examine actor and partner-level impact of ATMSB scores and subscales on sexual desire, sexual satisfaction, and relationship satisfaction.

Results

Differences between individuals with and without children. Differences between individuals with children and without children were conducted among men and women separately utilizing Mann-Whitney U tests. Results indicated that among men, there were significant differences in QMS subscale scores ($z = -2.15, p = .03$) and MSPE subscale scores ($z = -2.95, p = .003$) indicating that men with children have more positive (higher) scores related to QMS and MSPE. Similarly, among women, there were significant differences between QMS scores ($z = -2.85, p = .004$) and MSPE scores ($z = -2.11, p = .04$) indicating that women who are parents have more positive beliefs about mothers' ability to be both good mothers and sexual and more positive beliefs about mothers' sexual pleasure compared to women without children.

Bivariate results for couples with children. Spearman's Rho correlations were conducted at the bivariate level to assess bivariate correlations between the ATMSB scale and subscales and outcome variables of interest including sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction among men and women with children. Correlations were conducted between men and women separately to ensure independence of data (Kenny, Kashy, & Cook, 2006).

For men, desire discrepancy was correlated with MSF subscale scores ($r_s = -.31, p = .01$). Men's sexual satisfaction was correlated with ATMSB total score ($r_s = .43, p < .001$), QMS subscale scores ($r_s = .32, p = .003$), MSF subscale scores ($r_s = .37, p < .001$), QMS subscale scores ($r_s = .32, p = .003$), MSPE subscale scores ($r_s = .50, p < .001$), depression ($r_s = -.27, p = .01$), and self-esteem ($r_s = -.22, p = .04$). Men's relationship satisfaction was correlated with ATMSB total scores ($r_s = .28, p = .01$), MSF

subscale scores ($r_s = .31, p = .004$), MSPE subscale scores ($r_s = .41, p < .001$), self-esteem ($r_s = -.21, p = .05$), and depression ($r_s = -.33, p = .002$).

For women, dyadic desire was correlated with ATMSB total score ($r_s = .34, p = .002$), MSF subscale scores ($r_s = .35, p = .001$), MSPE subscale scores ($r_s = .22, p = .04$), and depression ($r_s = -.28, p = .01$). Desire discrepancies for women were correlated with ATMSB total scores ($r_s = -.22, p = .04$) and depression ($r_s = .22, p = .04$). Women's sexual satisfaction was correlated with ATMSB ($r_s = .24, p = .03$), MSF subscale scores ($r_s = .25, p = .02$), MSPE subscale scores ($r_s = .28, p = .01$), and depression ($r_s = -.34, p = .001$). Women's relationship satisfaction was correlated with MSPE subscale scores ($r_s = .23, p = .03$), depression ($r_s = -.26, p = .01$), and self-esteem ($r_s = -.22, p = .03$).

Bivariate results for couples without children. For men without children, dyadic desire was correlated with ATMSB total ($r_s = .41, p = .01$), MSF subscale ($r_s = .44, p = .002$), MSPE subscale ($r_s = .46, p = .001$), and self-esteem ($r_s = -.38, p = .005$). Men's sexual satisfaction was correlated with MSPE subscale ($r_s = .35, p = .02$), self-esteem ($r_s = -.48, p < .001$), and depression ($r_s = -.41, p = .002$). Men's relationship satisfaction was correlated with MSPE subscale ($r_s = .34, p = .03$), self-esteem ($r_s = -.48, p < .001$), and depression ($r_s = -.58, p < .001$). Men's desire discrepancies were not correlated with any of the predictor variables of interest.

For women without children, dyadic desire was correlated with ATMSB total ($r_s = .43, p = .002$), QMS subscale ($r_s = .49, p < .001$) and MSPE subscale ($r_s = .42, p = .003$). Among women without children, desire discrepancies was correlated with ATMSB total ($r_s = -.35, p < .01$), QMS subscale ($r_s = -.58, p < .001$), MSPE subscale ($r_s = -.29, p = .05$),

and self-esteem ($r_s = -.36, p = .01$). Sexual satisfaction was correlated with MSPE subscale ($r_s = .38, p = .01$) and depression ($r_s = -.40, p = .003$). Relationship satisfaction was correlated with ATMSB total ($r_s = -.30, p = .04$), MSF ($r_s = -.41, p = .003$), self-esteem ($r_s = -.35, p = .01$), and depression ($r_s = -.55, p < .001$).

Multivariate results for couples with children. A series of multiple linear regression models were conducted with ATMSB total and separate subscales predicting sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction among coupled women and men with and without children split by gender due to the lack of independence of data when using couple-level data (Kenny & Cook, 1999; Kenny, Kashy, & Cook, 2006). Variables that were significant at the bivariate level were included in each model for men and women including controlling for significant contextual variables.

Sexual desire. For women, to predict dyadic sexual desire, depression was placed into the first block and ATMSB total, the MSF subscale, and the MSPE subscale were placed into the second block. Results indicated that the model was significant in predicting dyadic desire $Adjusted R^2 = .13, F(4, 84) = 4.10, p = .004$. However, depression was the only significant predictor of dyadic sexual desire ($\beta = -.23, t = -2.00, p = .05$; higher levels of depression were associated with lower levels of desire), ATMSB total score the MSF subscale, and the MSPE subscale did not predict dyadic sexual desire. None of the predictor variables were significant at the bivariate level for men and therefore, a multivariate test was not conducted predicting desire for men.

Desire discrepancies. To predict desire discrepancies for women, depression was placed in the first block followed by ATMSB scale total in the second block. Results

indicate that the model was significant in predicting desire discrepancies $Adjusted R^2 = .06$, $F(2, 82) = 3.78$, $p = .03$. However, depression was the only significant predictor of desire discrepancy among women ($\beta = .23$, $t = 2.08$, $p = .04$; lower levels of depression were associated with lower levels of desire discrepancy between partners). ATMSB total scale did not predict desire discrepancy for women. Desire discrepancies were not placed into a linear model for men due to a lack of significant between more than one variable of interest.

Sexual satisfaction. To predict sexual satisfaction for women, depression was placed in the first block and ATMSB total, MSF subscale, and MSPE subscale were placed into the second block. Results indicated that the model was significant in predicting women's sexual satisfaction $Adjusted R^2 = .19$, $F(4, 80) = 6.00$, $p < .001$. Depression ($\beta = -.28$, $t = -2.63$, $p = .01$; higher levels of depression were associated with lower levels of sexual satisfaction) and MSF subscale scores ($\beta = .44$, $t = 2.05$, $p = .04$; more positive attitudes about mothers' sexual functioning were associated with higher levels of sexual satisfaction) predicted sexual satisfaction for women. These results indicated that when women have more positive (higher scores) attitudes about mothers' sexual functioning, they have higher levels of sexual satisfaction.

To predict men's sexual satisfaction, depression and self-esteem were placed into the first block, ATMSB total was placed into the second block, and QMS subscale, MSF subscale, and MSPE subscale were placed into the third block. Results indicated that the model was significant in predicting men's sexual satisfaction $Adjusted R^2 = .21$, $F(5, 65) = 4.79$, $p = .001$. MSPE subscale scores ($\beta = .37$, $t = 2.26$, $p = .03$) significantly

predicted sexual satisfaction among men such that more positive beliefs about mothers' sexual pleasure predicted higher levels of sexual satisfaction.

Relationship satisfaction. To predict women's relationship satisfaction, depression and self-esteem were placed into the first block, followed by MSPE in the second block. Results indicated the model was significant in predicting women's relationship satisfaction $Adjusted R^2 = .13$, $F(3, 83) = 5.21$, $p = .002$. MSPE subscale scores significantly predicted women's sexual satisfaction ($\beta = .22$, $t = 2.12$, $p = .04$) such that higher (more positive) attitudes towards mothers' sexual pleasure indicated higher levels of sexual satisfaction among women.

To predict men's relationship satisfaction, depression and self-esteem were placed into the first block, followed by ATMSB total, MSF subscale, and MSPE subscale in the second block. Results indicated that the model was significant in predicting relationship satisfaction $Adjusted R^2 = .23$, $F(5, 65) = 5.11$, $p = .001$. Depression ($\beta = -.30$, $t = 2.47$, $p = .02$) and MSPE subscale scores ($\beta = .50$, $t = 3.22$, $p = .002$) were significant in predicting men's relationship satisfaction. Results indicated that when men have more positive (higher scores) attitudes about mothers' sexual pleasure, they have higher levels of relationship satisfaction.

Multivariate results for couples without children.

Sexual desire. To predict dyadic desire among men without children, self-esteem was placed into the first block, followed by ATMSB total, MSF subscale, and MSPE subscale. The model was significant in predicting sexual desire $Adjusted R^2 = .23$, $F(4, 37) = 4.27$, $p = .006$. However, self-esteem was the only significant predictor of

dyadic desire for men ($\beta = -.32, t = -2.09, p = .04$). These results indicated that higher levels of self-esteem are associated with lower levels of desire.

To predict dyadic desire among women without children, ATMSB total, QMS subscale, and MSPE subscale were placed into the model. Results indicated that the model was significant in predicting dyadic desire *Adjusted R*² = .27, $F(3, 45) = 6.87, p = .001$, however none of the variables of interest significantly predicted dyadic desire among women without children.

Sexual desire discrepancies. To predict desire discrepancies among women without children, self-esteem was placed into the first block followed by ATMSB total, QMS subscale, and MSPE subscale. Results indicated that the model was significant in predicting desire discrepancies for women *Adjusted R*² = .28, $F(4, 43) = 5.56, p = .001$. QMS subscale scores predicted desire discrepancy for women without children ($\beta = -.69, t = -3.04, p = .004$). These results indicated that the more positive attitudes women have about mothers' abilities to be both sexual and good mothers, the lower the desire discrepancies between partners. No predictor variables of interest were significant at the bivariate level for desire discrepancies among men without children.

Sexual satisfaction. To predict sexual satisfaction for men without children, self-esteem and depression were placed into the first block, followed by MSPE subscale in the second block. The model was significant in predicting sexual satisfaction *Adjusted R*² = .22, $F(4, 40) = 5.07, p = .005$. However, no variables of interest were significant in predicting sexual satisfaction for men without children.

To predict sexual satisfaction for women without children, depression was placed into the first block followed by MSPE subscale in the second block. The model was

significant in predicting sexual satisfaction for women $Adjusted R^2 = .33, F(2, 47) = 13.11, p < .001$. Depression ($\beta = -.33, t = -2.79, p = .008$) and MPSE subscale ($\beta = .48, t = 4.12, p < .001$) significantly predicted sexual satisfaction for women without children. These results indicated that when women without children believe mothers experience sexual pleasure and enjoyment, they have higher levels of sexual satisfaction.

Relationship satisfaction. To predict relationship satisfaction among men without children, self-esteem and depression were placed into the first block followed by MSPE subscale in the second block. Results indicated that $Adjusted R^2 = .26, F(3, 40) = 5.91, p = .002$. Depression ($\beta = -.42, t = -2.50, p = .02$) and MSPE subscale ($\beta = .30, t = 2.19, p = .03$) significantly predicted relationship satisfaction for men without children. These results indicated that when men without children believe that mothers experience sexual pleasure and enjoyment, they have higher levels of relationship satisfaction.

To predict relationship satisfaction among women without children, depression and self-esteem were placed into the first block, followed by ATMSB total and MSF subscale scores. Results indicated that the model was significant in predicting relationship satisfaction for women without children $Adjusted R^2 = .41, F(4, 44) = 9.29, p < .001$. Depression ($\beta = -.41, t = -3.01, p = .004$), ATMSB total ($\beta = .52, t = 2.55, p = .01$), and MSF subscale ($\beta = -.70, t = -3.52, p = .001$) significantly predicted relationship satisfaction for women without children. These results indicated that when women without children endorse higher (more positive) overall beliefs about mothers as sexual beings, they have higher levels of relationship satisfaction. However, when these women have more positive beliefs about mothers' sexual functioning (levels of desire and sexual activity), they have lower levels of relationship satisfaction.

Structural equation modeling results among couples with children.

Structural equation modeling (SEM) was conducted to answer the research questions that incorporated partner effects. The Actor Partner Interdependence Model (APIM; Kenny & Cook, 1999; Kenny et al., 2006) was utilized as an analytic framework in which actor and partner effects were tested. An SEM was utilized to determine actor and partner effects of ATMSB total and subscales on sexual desire, sexual satisfaction, and relationship satisfaction among couples. Estimates were unstandardized to allow for comparisons across dyads (Kenny et al., 2006). Chi Square, Root Mean Square Error of Approximation (RMSEA), and Comparative Fit Index (CFI) were used to determine model fitness (Byrne, 2010).

Sexual desire. ATMSB total was placed in an APIM to predict men and women's dyadic sexual desire after controlling for depression. Results indicated strong model fitness: $\chi^2(2) = .20, p = .91, CFI = 1.00, RMSEA = .00$. Significant partner effects were found for men's ATMSB total predicting women's dyadic desire ($B = .16, p = .03$). See *Figure 1* for the APIM for ATMSB total predicting dyadic desire.

Next, subscales that were significant at the bivariate level were placed into the APIM predicting dyadic desire after controlling for depression. The model with MSF subscale scores predicting dyadic desire demonstrated strong model fitness: $\chi^2(2) = .86, p = .65, CFI = 1.00, RMSEA = .00$. Significant partner effects were found for men's MSF subscale scores predicting women's dyadic desire ($B = .49, p = .001$). See *Figure 2* for the APIM with MSF subscale scores predicting dyadic desire. Results for the MSPE subscale predicting dyadic desire indicated the model demonstrated strong fitness: $\chi^2(2) = .87, p = .87, CFI = 1.00, RMSEA = .00$, however, no variables of interest

were significant in predicting dyadic desire with the exception of women's depression predicting women's dyadic desire ($B = -.35, p = .002$).

Sexual satisfaction. To predict sexual satisfaction, ATMSB was placed into the APIM to predict sexual satisfaction after controlling for men's depression and self-esteem and women's depression. The model did not demonstrate strong model fitness: $\chi^2(3) = 5.95, p = .11, CFI = .97, RMSEA = .11$. Next subscales that were significant at the bivariate level were placed into an APIM predicting sexual satisfaction. The model with QMS predicting sexual satisfaction after controlling for depression for men and women and self-esteem for men did not demonstrate strong model fitness: $\chi^2(3) = 9.87, p = .02, CFI = .91, RMSEA = .16$. The model with MSF predicting sexual satisfaction after controlling for depression for men and women and self-esteem for men demonstrated strong model fitness: $\chi^2(3) = 2.40, p = .49, CFI = 1.00, RMSEA = .00$. Significant partner effects were found for men's MSF subscale scores predicting women's sexual satisfaction ($B = .27, p = .02$). See *Figure 3* for the APIM with MSF predicting sexual satisfaction. The model with MSPE predicting sexual satisfaction after controlling for depression for men and women and self-esteem for men demonstrated strong model fitness: $\chi^2(3) = 2.23, p = .53, CFI = 1.00, RMSEA = .00$. Results indicated men's MSPE subscale scores predicted men's sexual satisfaction ($B = .77, p < .001$) and men's MSPE subscale scores predicted women's sexual satisfaction ($B = .78, p < .001$). See *Figure 4* for APIM with MSPE subscale scores predicting sexual satisfaction.

Relationship satisfaction. To predict relationship satisfaction, ATMSB was placed into an APIM to predict relationship satisfaction after controlling for self-esteem and depression for men and women. The model did not demonstrate strong model

fitness: $\chi^2(5) = 52.31, p < .001, CFI = .65, RMSEA = .32$. Next, the MSF subscale was placed into the model to predict relationship satisfaction after controlling for self-esteem and depression. The model demonstrated strong model fitness: $\chi^2(4) = 6.94, p = .14, CFI = .97, RMSEA = .09$. Men's MSF subscale scores ($B = .24, p < .02$) and men's depression ($B = -.17, p = .02$) predicted men's relationship satisfaction. See *Figure 5* for the APIM with MSF predicting relationship satisfaction. Next, the MSPE subscale was placed into the model to predict relationship satisfaction after controlling for depression and self-esteem. The model demonstrated strong model fitness: $\chi^2(4) = 6.69, p = .15, CFI = .98, RMSEA = .09$. Women's MSPE subscale scores predicted women's relationship satisfaction ($B = .28, p = .04$) and men's relationship satisfaction ($B = .26, p = .04$) and men's MSPE subscale scores predicted men's relationship satisfaction ($B = .52, p < .001$) and women's relationship satisfaction ($B = .35, p = .02$). See *Figure 6* for the APIM with MSPE predicting relationship satisfaction.

Structural equation model results among non-parents. A series of SEM were conducted utilizing the same parameters as utilized with the couples with children.

Sexual desire. To predict dyadic desire at the couple level, ATMSB total was placed into an APIM predicting dyadic desire and controlling for men's self-esteem. The model did not demonstrate strong model fitness: $\chi^2(1) = 2.78, p = .10, CFI = .95, RMSEA = .18$. Next, subscales that were significant at the bivariate level were placed into APIMs to predict dyadic desire. First, QMS subscale was placed into an APIM predicting dyadic desire. The model demonstrated strong model fitness: $\chi^2(1) = .07, p = .79, CFI = 1.00, RMSEA = .00$. There were significant actor effects with men's QMS subscale scores predicting men's dyadic desire ($B = .47, p = .007$) and women's QMS

subscale scores predicting women's dyadic desire ($B = .90, p < .001$), both indicating that more positive attitudes towards the idea that mothers can be both sexual and good/effective/responsible mothers were associated with higher levels of dyadic desire for men and women. Additionally, significant partner effects were found such that women's QMS subscale scores predicted men's dyadic desire ($B = -.49, p = .02$). However, this finding indicated that when women had more positive attitudes about mothers as both sexual and good/effective/responsible mothers, their male partners had lower levels of desire. See *Figure 7* for the full APIM with QMS subscale predicting dyadic desire. Next, MSF subscale was placed into an APIM predicting dyadic desire after controlling for men's self-esteem. The model did not demonstrate strong model fitness: $\chi^2(1) = 4.87, p = .03, CFI = .87, RMSEA = .27$. Next, MSPE subscale was placed into an APIM to predict dyadic desire after controlling for men's self-esteem. The model did not demonstrate strong model fitness: $\chi^2(1) = 8.45, p = .004, CFI = .71, RMSEA = .38$.

Sexual satisfaction. For sexual satisfaction at the dyadic level among couples without children, MSPE subscale was placed into the model controlling for self-esteem and depression. Results indicated that the model did not demonstrate strong model fitness $\chi^2(4) = 9.90, p = .04, CFI = .95, RMSEA = .17$.

Relationship satisfaction. For relationship satisfaction at the dyadic level among couples without children, ATMSB total was placed into the model after controlling for self-esteem and depression. Results indicated that the model demonstrated strong model fitness: $\chi^2(4) = 2.61, p = .62, CFI = 1.00, RMSEA = .00$.

However, the only variables that were significant in predicting relationship satisfaction were depression with actor effects for women ($B = -.26, p = .002$) and for men ($B = -.25, p < .001$). Next, MSF subscale was placed into the model to predict relationship satisfaction after controlling for depression and self-esteem. Results indicated that the model demonstrated strong model fitness: $\chi^2(4) = 2.19, p = .70, CFI = 1.00, RMSEA = .00$. Women's MSF subscale scores predicted women's relationship satisfaction (actor effects; $B = -.32, p = .02$), and men's relationship satisfaction (partner effects; $B = -.31, p = .02$). See *Figure 8* for the full APIM with MSF subscale predicting relationship satisfaction. These results indicated that when women without children have higher more positive attitudes towards mothers' sexual functioning, they have lower levels of relationship satisfaction as do their male partners. Next, MSPE subscale was placed into the model to predict relationship satisfaction after controlling for depression and self-esteem. Results indicated that the model demonstrated adequate model fitness: $\chi^2(4) = 4.86, p = .30, CFI = .99, RMSEA = .06$. Significant actor effects were found for men's MSPE subscale predicting men's relationship satisfaction ($B = .50, p = .02$). These findings indicate that when men without children have more positive attitudes towards mothers' sexual pleasure, they have higher levels of relationship satisfaction.

Discussion

The current study aimed to develop a new tool to measure individuals' attitudes towards mothers as sexual beings (ATMSB), to assess differences in ATMSB between individuals in couples with children compared to those without children, and investigate the role of these attitudes in predicting sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction among couples with children and those without

children. This study has added to the existing literature by providing a new measurement tool for researchers examining sexual and relationship outcomes among couples with children and long-term couples that may become parents in the future. Additionally, the current study has reported differences in ATMSB between individuals in couples with children and those without children. Finally, the current study has established evidence for various associations between ATMSB (and specific subscales) and dyadic desire, desire discrepancies, sexual satisfaction and relationship satisfaction among couples with children and those without children.

First, the findings of this study indicate that the ATMSB scale is a preliminary measurement tool with promising qualities for measuring individuals' attitudes about mothers as sexual beings with the following three factors: 1) Quality of Mothering and Sexuality (QMS), 2) Mothers' Sexual Functioning (MSF), and 3) Mothers' Sexual Pleasure and Enjoyment (MSPE). The first factor measures the degree to which individuals believe women can be good, effective, and responsible mothers while simultaneously being "sexual" or "sexy." The second factor, measures attitudes about mothers' sexual functioning including levels of desire and interest, sexual fantasies, and likelihood of engaging or wishing to engage in partnered sexual activity. The final factor measures attitudes about mothers' sexual pleasure and enjoyment including perceptions of the likelihood a mother experiences pleasure when engaging in sexual activity.

The second finding indicates that there were significant differences in ATMSB between individuals in couples with children and those without children. These findings indicate that men and women with children had significantly more positive attitudes

towards women's ability to be a good/effective/responsible mother while simultaneously a sexy or sexual individual. Additionally, men and women with children had significantly more positive attitudes about mothers' experiences with sexual pleasure and enjoyment in comparison to men and women without children. These differences in attitudes about mothers' sexuality between couples with children and couples without children may be due to differences in experiences with either being a mother or partnered to a mother compared to having little experience with mothers in a romantic context. However, findings provide some insight into possible protective factors for couples with children and their sexuality as both men and women with children had more positive beliefs about mothers' sexuality in comparison to men and women without children.

The third finding indicates that there were significant associations between ATMSB total scores and specific subscale scores and sexual and relational outcomes among men and women with children. Specifically, results indicated that when women who are mothers believe mothers have high levels of sexual functioning (MSF), they are more sexually satisfied. Additionally, when women with children believe that mothers experience sexual pleasure and enjoyment (MSPE), they have higher levels of overall relationship satisfaction. These findings are aligned with previous work indicating that women's beliefs about women's sexuality were associated with sexual health outcomes (Nobre et al., 2003). For example, Nobre and colleagues (2003) found that lower levels of sexual functioning among women were predicted by negative beliefs about sexuality as immoral, not relevant for aging women, and significantly connected to body appearance.

In the current study, the association between satisfaction and the beliefs of women with children that mothers experience high levels of sexual functioning and pleasure may be partly due to women reflecting on their own experiences with sexual functioning and pleasure. For example, when women experience sexual pleasure in their romantic relationships, they are more likely to be sexually and emotionally satisfied in comparison to women who experience less sexual pleasure (Waite & Joyner, 2001). In future studies utilizing the ATMSB scale and subscales, it may be necessary to control for levels of sexual pleasure and sexual functioning when investigating the impact of women's beliefs about mothers' experiences of these constructs.

For men with children in the current study, beliefs that mothers experience sexual pleasure and enjoyment predicted higher levels of sexual and relationship satisfaction. These findings indicate that when men with children believe mothers experience high levels of sexual pleasure, they are more satisfied sexually and overall in their romantic relationships. Alternatively, previous work demonstrates that men's negative sexual beliefs about women's sexual power and satisfaction are correlated with lower levels of sexual functioning (Nobre, Gouveia, & Gomes, 2003). These beliefs include specific endorsements such as "a man who doesn't sexually satisfy a woman is a failure" and "the greater the sexual intimacy, the greater the potential for getting hurt" (Nobre et al., 2003, pp. 184-185). As the current findings indicate that positive beliefs about women's (specifically mothers') sexuality result in more satisfying relationships for men, the current study in addition to previous work demonstrates the strength of associations between beliefs about sexuality and actual sexual health outcomes. As with the women with children in the current study, these men could be thinking about their own partners

when conceptualizing women who are mothers. Therefore, the men whose partners experience high levels of sexual pleasure likely believe that this should be the case for all mothers. However, measuring the impact of general beliefs about motherhood and sexuality among men partnered to mothers still provides insight into the ways men conceptualize motherhood and sexuality as compatible constructs; either reinforcing or challenging mainstream beliefs about gender roles and sexuality.

The fourth finding from the current study was that men and women without children also had significant associations between ATMSB and/or specific subscales and desire discrepancies, sexual satisfaction, and relationship satisfaction. Specifically, for women without children, the more positive a woman rated mothers' abilities to be simultaneously good/effective/responsible mothers and sexual or sexy (QMS subscale), the lower her desire discrepancies were between partners in her relationship. This is an interesting finding given that the QMS subscale was not significantly related to any of the outcome variables for couples with children. However, this construct (QMS) was prominent in the literature reporting research among mothers who had transitioned into parenting (Kleinplatz, 2001; Sims & Meana, 2010, Trice-Black, 2010). Perhaps the women with children in the current study were more established in their 'mother' identity and therefore, not experiencing a significant effect of the QMS attitudes on their sexuality. MSPE subscale scores were associated with sexual satisfaction among women without children and relationship satisfaction among men without children in the current study. These findings may be capturing a broader relationship between pleasure and sexual and relational health among these couples.

The current findings among men and women with and without children are aligned with previous work on beliefs about gender and sexuality in that non-traditional beliefs are associated with higher levels of sexual skills including sexual communication and assertiveness among men and women that contribute to higher levels of satisfaction (Greene & Faulkner, 2005). One common belief about gender differences in sexuality is that men engage in sexual activity for physical reasons whereas women are thought to engage in sexual activity for emotional reasons (Sakaluk et al., 2014). However, when men and women in long-term romantic partnerships acknowledge the role of sexual pleasure and enjoyment, they have better sexual outcomes because they engage in sexual communication and negotiation to ensure each partner's sexual needs are being met (Kleinplatz et al., 2009). Further, men and women believe that women in committed partnerships are more entitled to sexual pleasure in comparison to single women (Armstrong, England, & Fogarty, 2012), indicating an advantage for coupled women. As a whole, when men and women in long-term partnerships with and without children believe that mothers are sexual beings and experience sexual pleasure, they have higher levels of satisfaction sexually and in the overall relationship.

One interesting finding among women without children, was that ATMSB total scores had a positive relationship with relationship satisfaction, however, MSF subscale scores were negatively associated with relationship satisfaction. Therefore, when women without children have more negative attitudes about mothers' sexual functioning, they had higher levels of relationship satisfaction. These findings are puzzling as the ATMSB total scores indicated a positive relationship with relationship satisfaction. This may be to the detail of items asking questions about mothers' sexual

desire, sexual interest, sexual activity, and sexual fantasies. It could be that societal messages about mothers and sexuality separate perceptions about functioning for women with children and women without children such that women without children believe their functioning is not similar to mothers' sexual functioning. Additionally, as these women are all in long-term partnerships, perhaps their own functioning is low, but they still maintain high quality relationships and therefore, rated these items in a similar way they would rate their own sexual functioning. More research is needed to understand this finding among women without children.

The fifth finding of the current study indicates that there were actor and partner effects for ATMSB total score and specific subscales on sexual and relational outcomes for couples with children. Specifically, when men have higher ATMSB total scores and Mothers' Sexual Functioning (MSF) subscale scores, their partners have higher levels of dyadic desire (desire for them). This finding supports previous research reporting partner effects between men and women in romantic partnerships in which women's sexual desire levels are impacted by their partner's sexual outcomes (Mark, 2012; 2014; Muise, Impett, & Desmarais, 2013). In addition, women report that they have higher levels of sexual desire when they "feel desired" by their current partner (Graham, Sanders, Milhausen, & McBride, 2004; Mark et al., 2014). Therefore, the partner effects for the current study may provide support for men's ATMSB impacting the ways in which their female partners feel desired in the context of their romantic partnerships. These findings also support previous work among mothers indicating that when they feel desired by their partners, they have higher levels of desire for their partners, even in the postpartum period (Hipp et al., 2012).

Other actor and partner effects of the current study among couples with children indicate that when men believe that mothers' have high levels of sexual pleasure and enjoyment (MSPE), they have higher levels of sexual satisfaction and their partners have higher levels of sexual satisfaction. Importantly, these findings indicate the value of male partners acknowledging that women who are mothers are indeed sexual beings that experience sexual pleasure and engage in sexual activity that is enjoyable has advantages for both partners in the couple.

In addition, there were significant full actor and partner effects for the MSPE subscale and relationship satisfaction among men and women. These findings indicate that when partners endorse beliefs that mothers experience sexual pleasure and enjoyment, they have higher levels of relationship satisfaction and so do their partners. Previous work indicates that men's sexual attitudes impact the likelihood of him engaging with his female partner in a way that explores her desires and satisfaction (Nobre et al., 2003). Perhaps these beliefs about mothers' pleasure and enjoyment also influence the ways in which men sexually engage with their partners. This association between a man's beliefs and the interpersonal sexual processes within the couple may hinder or enhance the degree of satisfaction experienced by his female partner.

Finally, the sixth finding of the current study was that there were fewer and different significant actor and partner effects among couples without children. For example, QMS subscale scores were associated with positive actor effects for men and women's desire and partner effects for women's QMS and men's desire. Therefore, when men and women without children believe that mothers can be both good/effective/responsible mothers and sexy/sexual, they have higher dyadic desire.

However, there were significant negative effects of women's MSF and women's relationship satisfaction and her male partners' relationship satisfaction. These results are in contrast to previous work indicating that when men and women endorse fewer beliefs in sexually dysfunctional attitudes, they have more positive sexual functioning outcomes (Nobre et al., 2003). There may be an important distinction between beliefs about women's overall sexual functioning in comparison to sexual functioning beliefs that are specific to mothers. More research is needed to further understand these findings.

As a whole, the current findings demonstrate that the ATMSB scale is a preliminary tool with good internal consistency. A connection between beliefs about mothers' sexual pleasure and enjoyment and relationship satisfaction and sexual satisfaction with actor and partner effects between partners in couples with children has been established. This insight into specific beliefs about sexual pleasure provides an interesting premise for future research examining the role of pleasure in relationship factors among couples with children. This is especially true given that men and women who report experiencing high levels of sexual pleasure are more likely to be committed partnerships in comparison to individuals who do not experience these levels of pleasure (Waite & Joyner, 2001).

Limitations and Future Directions

Though the current study has a variety of strengths, there are also limitations. First, though the scale development process included sending items created from the literature to a panel of experts in the sexuality research field and these experts assessed the items for content and clarity, the current study did not incorporate a

cognitive interviewing process in which clarity of items was examined in a community sample. This is a step that may have been beneficial to ensure participants understand what each item is meant to measure. Additionally, the ATMSB scale was developed by including couples from the US. There may be important cultural aspects of mothers' sexuality attitudes that have not been captured in the current scale development methodology. Future research is needed to further validate this tool among couples in other countries. Additionally, the current study did not explicitly ask participants without children if they planned to have children in the future. Though individuals without children did not have the experience of parenting, understanding the relationship between ATMSB and the intention to parent may be useful for understanding the impact of these attitudes on sexual and relational outcomes among couples. Future research investigating ATMSB among couples without children may benefit from including a question about parenthood intentions.

Another limitation of the current study was that sexual pleasure and functioning were not included as control variables. When examining outcomes related to the MSF subscale and the MSPE subscale, controlling for actual sexual pleasure and functioning may be important for future studies. Similarly, the Beck Depression Inventory (BDI-II) was utilized in the current study as a measurement of depression to control for depression as a psychological confounding variable. However, there is evidence that the BDI-II does not capture significant symptomology for postpartum depression in some women (Beck & Gable, 2001). One study found that it captured 56% of women who were experiencing postpartum depression (Beck & Gable, 2001). Therefore,

though not an outcome variable, this is a measurement limitation due to some women with children having infants in the current study.

Finally, the current study included a data set that did not completely meet criteria for the assumption of normality. Though it is common in psychological and social sciences research to have non-normal data (Blanca, Arnau, Lopez-Montiel, Bono, & Bendayan, 2013), the current study incorporated parametric testing due to the limitations of other methodologies at the dyadic level. Though there has been some research suggesting that results of parametric testing assuming linear relationships are minimally impacted unless the data represents an extreme departure from normality (Lumley, Diehr, Emerson, & Chen, 2002), this is a limitation of the current study. Due to missing data present in the current study, the SEM analyses did not benefit from the “asymptotically distribution free” indicator in AMOS 24 that supports data with non-normal properties. Due to the utilization of non-normal data in SEM possibly resulting in conservative estimates of model fitness (Tomarken & Waller, 2005), there may be additional significant findings that were not captured in the current study. Future research may benefit from including no missing data in their SEM analyses to benefit from utilizing this indicator.

Clinical Implications

The current findings have implications for clinicians working with parents struggling with their sexual and intimate lives. For example, these findings provide insight into the importance of beliefs among men and women that motherhood and sexuality are compatible. In addition, positive beliefs about mothers’ experiences with sexual pleasure and enjoyment may protect couples against declines in satisfaction

over time, however longitudinal research is needed to confirm this notion. Finally, when couples with children present with sexual concerns in a clinical setting, directing attention to beliefs about mothers as sexual beings may be one area of the relationship to focus clinical attention.

Acknowledgements: This study was funded by the Patty Brisben Foundation for Women's Sexual Health. Additionally, thank you to the experts who provided feedback for the original scale items.

Table 4.1. *Demographic characteristics of study participants*

Characteristic	Couples without children		Couples with children	
	Men (n = 54)	Women (n = 54)	Men (n = 93)	Women (n = 93)
Relationship Status				
Married and cohabitating	31(57.4)	31(57.4)	79(84.9)	80(86)
Partnered and cohabitating	23(42.6)	23(42.6)	14(15.1)	13(14)
Relationship Type				
Monogamous	54(100)	54(100)	89(95.7)	89(95.7)
Consensually non-monogamous	0	0	4(4.3)	4(4.3)
Race/Ethnicity				
African American	4(7.4)	3(5.6)	5(5.4)	3(3.2)
Asian/Asian American	3(5.6)	4(7.4)	0	2(2.2)
Hispanic	0	0	0	3(3.2)
Native American	3(5.6)	2(3.7)	4(4.3)	5(5.4)
White	43(79.6)	45(83.3)	84(90.3)	80(86)
Other	1(1.9)	0	0	0
Sexual Orientation				
Heterosexual	54(100)	50(92.6)	90(96.8)	80(86)
Bisexual	0	3(5.6)	3(3.2)	7(7.5)
Pansexual	0	0	0	5(5.4)
Unsure/Questioning	0	1(1.9)	0	1(1.1)
Education				
Grade school	2(3.7)	0	0	0
Some high school	0	0	2 (2.2)	0
High school graduate	4(7.4)	5(9.3)	9(9.7)	5(5.4)
Some college/2-year degree	11(20.4)	16(29.6)	18(19.4)	21(22.6)
Bachelor's degree	32(59.3)	20(37)	38(40.9)	39(41.9)
Graduate degree	5(9.3)	13(24.1)	24(25.8)	28(30.1)
Other	0	0	2(2.2)	0
Student Status				
Yes, Undergraduate	7(13)	6(11.1)	1(1.1)	4(4.3)
Yes, Graduate	3(5.6)	9(16.7)	2(2.2)	6(6.5)
No	44(81.5)	38(70.4)	90(96.8)	83(89.2)
Religious Affiliation				
Christian (non-Catholic)	15(27.8)	14(25.9)	35(37.6)	34(36.6)
Catholic	9(16.7)	7(13)	9(9.7)	11(11.8)
Mormon	0	0	1(1.1)	0
Jehovah's Witness	0	0	0	1(1.1)
Unaffiliated	21(38.9)	25(46.3)	37(39.8)	31(33.3)
Atheist	1(1.9)	0	5(5.4)	4(4.3)
Other	2(3.7)	0	2(2.2)	6(6.5)
Mean age	28.3 years	27.2 years	34.8 years	33 years
Mean relationship length	5.14 years	5.14 years	9.89 years	9.89 years

Table 4.2. *Factor Loadings for the ATMSB Scale Development (N = 294)*

Subscales and Items	Quality of Mothering	Sexual Functioning	Sexual Pleasure and Enjoyment
Factor 1: Quality of Mothering and Sexuality			
Sexy women who are mothers are more likely to be (bad/good)	.86		
Sexy women who are mothers are more likely to be (irresponsible/responsible)	.87		
Sexy women who are mothers are more likely to be (ineffective/effective)	.89		
Sexual women who are mothers are more likely to be (bad/good)	.86		
Sexual women who are mothers are more likely to be (irresponsible/responsible)	.88		
Sexual women who are mothers are more likely to be (ineffective/effective)	.87		
Factor 2: Mothers' Sexual Functioning			
Compared to women in general, women who are mothers have (less/more desire)		.82	
Compared to women in general, women who are mothers have (less/more sexual interest)		.83	
Women who are mothers engage in sexual activity with a partner (never/frequently)		.65	
Compared to women in general, women who are mothers engage in sexual activity with a partner (less/more often)		.83	
Compared to women in general, women who are mothers want to engage in sexual activity with a partner (less/more often)		.77	
Women who are mothers can act on sexual fantasies if they wish (never/frequently)		.69	
Compared to women in general, women who are mothers can act on sexual fantasies if they wish (less/more often)		.81	
Factor 3: Mothers' Sexual Pleasure and Enjoyment			
Women who are mothers have sexual experiences that are (not at all/extremely pleasurable)			.76
Women who are mothers experience sexual pleasure that is (not at all/extremely intense)			.80
Women who are mothers experience sexual activity as (not at all/extremely enjoyable)			.80
Women who are mothers find orgasms (not at all/extremely enjoyable)			.79

Table 4.3. *Multivariate analyses with ATMSB predicting sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction among women with children (N = 93)*

Variable	<i>b</i>	<i>SE</i>	β	<i>R</i> ²
Predicting Dyadic Desire				.11
Model 1				
Depression	-.43	.13	-.34***	
Model 2				.13
Depression	-.29	.14	-.23*	
ATMSB Total	-.14	.17	-.22	
MSF Subscale	.43	.26	.36	
MSPE Subscale	.31	.35	.14	
Predicting Desire Discrepancies				.06
Model 1				
Depression	.41	.16	.27**	
Model 2				.06
Depression	.35	.17	.23*	
ATMSB Total	-.08	.09	-.11	
Predicting Sexual Satisfaction				.15
Model 1				
Depression	-.35	.09	-.40***	
Model 2				.19
Depression	-.25	.10	-.28**	
ATMSB Total	-.17	.13	-.35	
MSF subscale	.40	.20	.44*	
MSPE subscale	.41	.26	.23	
Predicting Relationship Satisfaction				.09
Model 1				
Depression	-.15	.08	-.22	
Self-Esteem	-.20	.13	-.17	
Model 2				.13
Depression	-.11	.08	-.17	
Self-Esteem	-.20	.13	-.18	
MSPE Subscale	.30	.14	.22*	

Notes: **p* < .05, ***p* < .01, ****p* < .001; *R*² is based on adjusted

Table 4.4. *Multivariate analyses with ATMSB predicting sexual satisfaction and relationship satisfaction among men with children (N = 93)*

Variable	<i>b</i>	<i>SE</i>	β	<i>R</i> ²
Predicting Sexual Satisfaction				.07
Model 1				
Depression	-.24	.12	-.26*	
Self-esteem	-.13	.17	-.10	
Model 2				
Depression	-.18	.12	-.19	.16
Self-esteem	-.05	.17	-.04	
ATMSB total scale	.16	.06	.33	
Model 3				
Depression	-.20	.12	-.21	.21
Self-esteem	-.04	.16	-.03	
ATMSB total scale	.04	.11	.09	
QMS subscale	-.04	.16	-.04	
MSPE subscale	.64	.28	.37*	
Predicting Relationship Satisfaction				.09
Model 1				
Depression	-.28	.11	-.34**	
Self-esteem	-.04	.16	-.04	
Model 2				
Depression	-.26	.11	-.30*	.23
Self-esteem	-.004	.15	.003	
ATMSB Total	-.15	.11	-.33	
MSPE Subscale	.79	.25	.50**	
MSF Subscale	.17	.15	.22	

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$; R^2 is based on adjusted

Table 4.5. *Multivariate analyses with ATMSB predicting sexual desire, desire discrepancies, sexual satisfaction and relationship satisfaction among women without children (N = 54)*

Variable	<i>b</i>	<i>SE</i>	β	<i>R</i> ²
Predicting Dyadic Desire				.27
Model 1				
ATMSB total	.05	.20	.07	
QMS subscale	.63	.37	.37	
MSPE subscale	.55	.47	.21	
Predicting Desire Discrepancy				.10
Model 1				
Self-esteem	-.85	.34	-.34*	
Model 2				
Self-esteem	-.32	.35	-.13	.28
ATMSB total	.31	.26	.32	
QMS subscale	-1.54	.51	-.69**	
MSPE subscale	-.41	.68	-.11	
Predicting Sexual Satisfaction				.11
Model 1				
Depression	-.24	.09	-.36*	
Model 2				
Depression	-.22	.08	-.32**	.33
MSPE subscale	.80	.19	.48***	
Predicting Relationship Satisfaction				.27
Model 1				
Self-esteem	-.23	.19	-.19	
Depression	-.30	.11	-.42**	
Model 2				
Self-esteem	-.34	.17	-.27	.41
Depression	-.29	.10	-.41**	
ATMSB total	.26	.10	.52**	
MSF subscale	-.67	.19	-.70**	

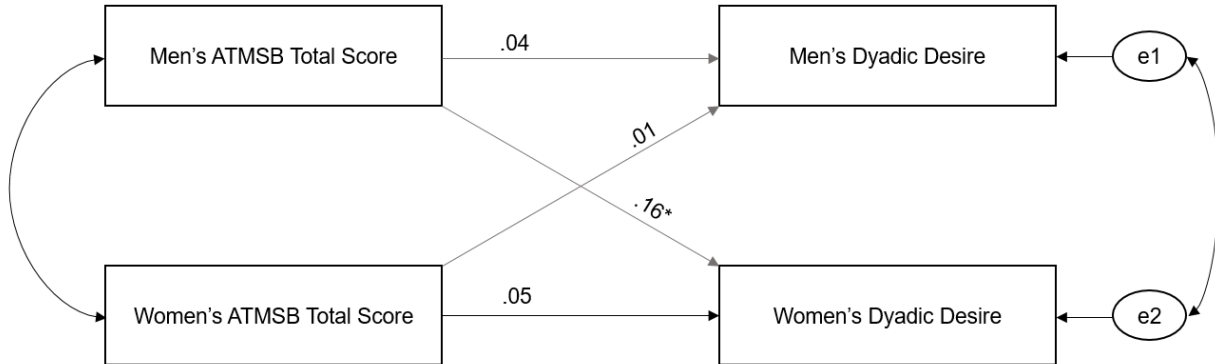
Notes: **p* < .05, ***p* < .01, ****p* < .001; *R*² is based on adjusted

Table 4.6. *Multivariate analyses with ATMSB predicting desire, desire discrepancies, sexual satisfaction and relationship satisfaction among men without children (N = 54)*

Variable	<i>b</i>	<i>SE</i>	β	R^2
Predicting Dyadic Desire				.16
Model 1				
Self-esteem	-.62	.21	-.42**	
Model 2				.24
Self-esteem	-.46	.22	-.32*	
ATMSB total	-.07	.27	-.12	
MSPE subscale	.59	.51	.25	
MSF subscale	.33	.50	.29	
Predicting Sexual Satisfaction				.18
Model 1				
Self-esteem	-.24	.19	-.22	
Depression	-.16	.09	-.30	
Model 2				.22
Self-esteem	-.16	.19	-.14	
Depression	-.17	.09	-.33	
MSPE subscale	.41	.24	.24	
Predicting Relationship Satisfaction				.19
Model 1				
Depression	-.22	.10	-.39*	
Self-esteem	-.14	.20	-.12	
Model 2				.26
Depression	-.23	.09	-.42*	
Self-esteem	-.04	.20	-.03	
MSPE subscale	.55	.25	.30*	

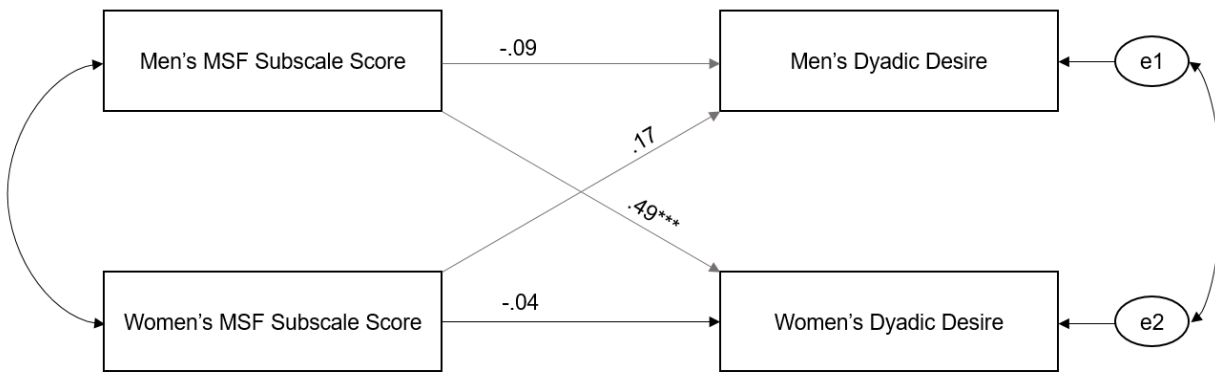
Notes: * $p < .05$, ** $p < .01$, *** $p < .001$; R^2 is based on adjusted

Figure 4.1. Actor and partner effects of ATMSB total predicting dyadic desire among couples with children



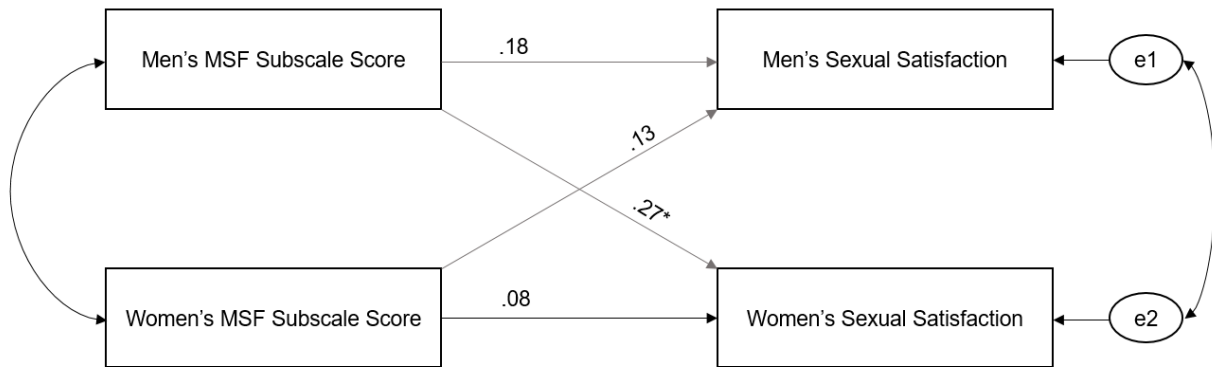
* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 4.2. Actor and partner effects of MSF subscale predicting dyadic desire among couples with children



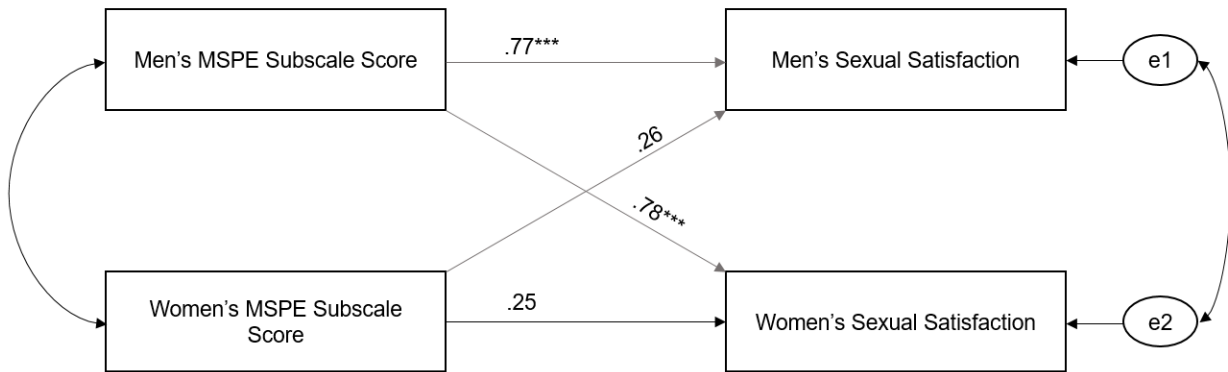
* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 4.3. Actor and partner effects of MSF subscale predicting sexual satisfaction among couples with children



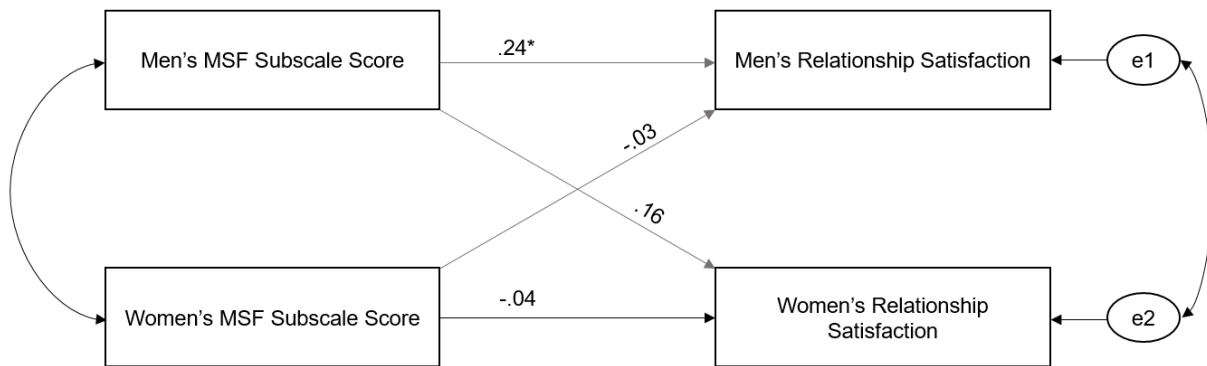
* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 4.4. Actor and partner effects of MSPE subscale predicting sexual satisfaction among couples with children



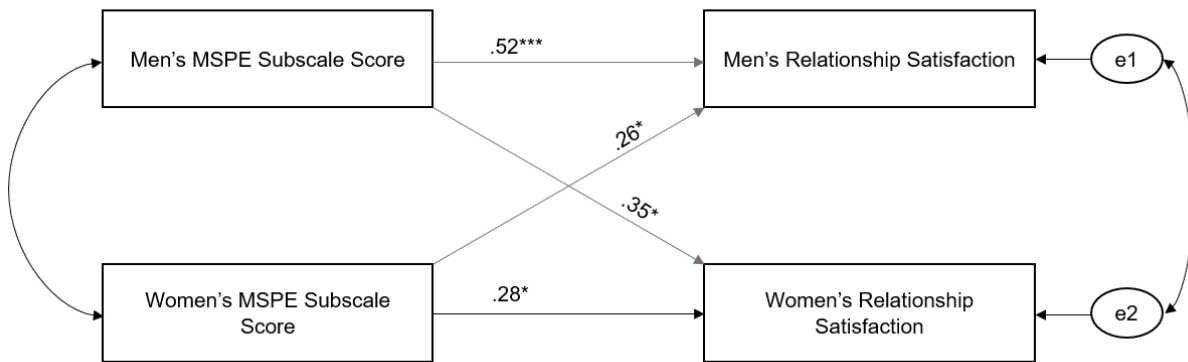
* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 4.5. Actor and partner effects of MSF subscale predicting relationship satisfaction among couples with children



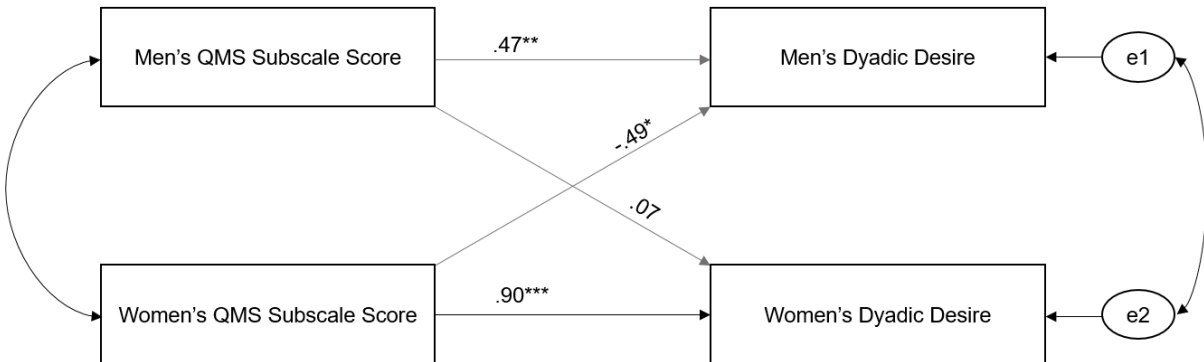
* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 4.6. Actor and partner effects of MSPE subscale predicting relationship satisfaction among couples with children



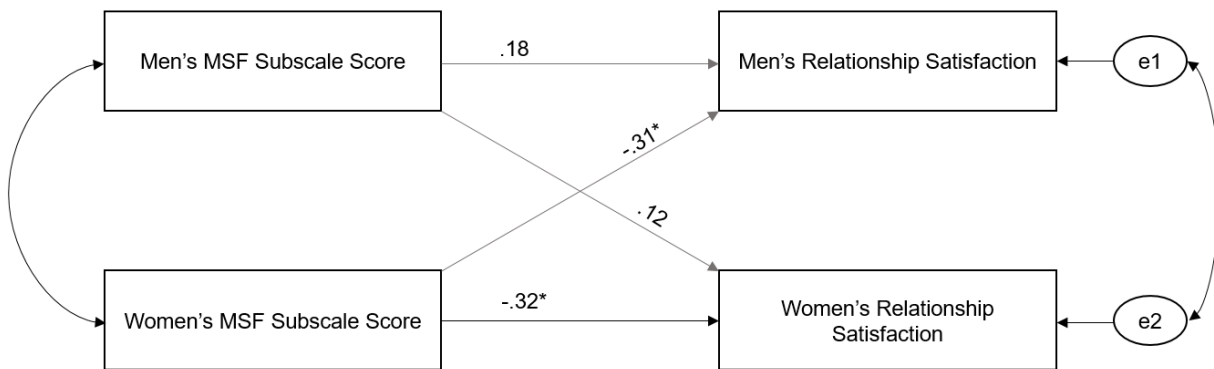
* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 4.7. Actor and partner effects of QSM subscale predicting dyadic desire among couples without children



* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 4.8. Actor and partner effects of MSF subscale predicting relationship satisfaction among couples without children



* $p < .05$, ** $p < .01$, *** $p < .001$

CHAPTER 5

Manuscript 2: The Impact of Adverse Childhood Experiences (ACEs) on Sexuality and Relationship Health Among Intact Couples with Children

Primary proposed journal: *Journal of Marital and Family Therapy*

Secondary proposed journal: *Journal of Family Psychology*

Abstract

Adverse Childhood Experiences (ACEs) negatively impact relational health across the lifespan increasing likelihood of relationship instability and divorce. Due to divorce representing one of the ten experiences considered to be adverse experiences in childhood, it is important to consider the ways in which ACEs contribute to adverse relational outcomes that may influence relationship dissolution among couples with children. As such, the current study aimed to investigate the impact of ACE score on sexual desire, desire discrepancies, sexual satisfaction, relationship satisfaction, sexual costs and rewards, and infidelity among mixed sex (one man one woman) intact couples with children. Data were collected from both partners in the couple through an online questionnaire. Among the sample of couples with children ($N = 186$), results indicated that for women, ACE score significantly predicted perceptions of the equality of sexual costs in the relationship (EQcst) such that higher ACE scores were associated with women reporting that they experience higher sexual costs compared to their male partners. For men, ACE score significantly predicted likelihood of engaging in infidelity in the context of their current relationships. At the couple level, men's ACE scores predicted women's EQcst such that when men had higher ACE scores, their female partners were more likely to rate themselves as having higher costs in the sexual relationship in comparison to their male partners. Taken together, ACE score is associated with negative relational patterns among intact (mostly married) couples that are full-time care takers of children living in the home. Clinical implications suggest a need to assess ACE score in a variety of healthcare settings to identify parents who may be at risk of negative relational outcomes and refer these couples to appropriate interventions.

Key Words: Adverse childhood experiences, parents, sexual, relationship, infidelity, costs.

The Impact of Adverse Childhood Experiences (ACEs) on Sexuality and Relationship Health Among Intact Couples with Children

Introduction

Adverse childhood experiences (ACE) have a significant impact on relationship health across the lifespan (Doucet & Aseltine, 2003; Dube, Felitti, Dong, Giles, & Anda, 2003; Hillis Anda, Dube, Felitti, Marchbanks, & Marks, 2004; Felitti et al., 1998; Johnson, Cohen, Gould, Kasen, Brown, & Brook, 2002; Whitfield, Anda, Dube, & Felitti, 2003). These childhood experiences include abuse (sexual, physical, emotional), neglect (physical, emotional), and parent or caretaker factors including mental illness, substance abuse, incarceration, domestic violence, and separation/divorce (Dube et al., 2003).

The experiences in childhood that ACEs encompass are associated with infidelity, relational conflict, relational instability, and divorce in the context of romantic partnerships (Anderson, 2017; Coleman & Widom, 2004; Doucet & Aseltine, 2003; Ford, Clark, & Stansfeld, 2011; Whisman & Snyder, 2007). These findings support an overall effect of ACEs that is intergenerational and cyclical within the family context (Bellis, Lowey, Leckenby, Hughes, & Harrison, 2013). Therefore, understanding the role of ACEs on relationship health among parents may provide insight into the nuanced ways in which these relationships exhibit negative relational patterns that may be risk factors for divorce or have protective qualities that could buffer against divorce. As such, the current study aimed to investigate the role of ACE score in predicting sexual desire, desire discrepancies, satisfaction, sexual rewards and costs, and infidelity in a sample of couples with children living in the home.

Impact of ACEs on Sexual and Relationship Health

ACEs impact many qualities of interpersonal health across the lifespan. In general, individuals who have a history of abuse in childhood are six times more likely to have problems in their romantic relationships (McCarthy & Taylor, 1999). In adolescents, ACEs are significantly associated with an increased likelihood of teen pregnancy, risky sexual behaviors, sexual transmitted infections (STI), interpersonal difficulty, and interpersonal violence (Doucet & Aseltine, 2003; Dube et al., 2003; Felitti et al., 1998; Hillis et al., 2004; Johnson et al., 2002; Whitfield et al., 2003). In adulthood, ACEs are also associated with interpersonal violence and risky sexual behaviors (Anderson, 2017; Whisman & Snyder, 2007; Whitfield et al., 2003). In addition, adults with adversity in childhood are more likely to experience weak social support networks, more negative social interactions, more conflict in romantic relationships, and to be single or divorced (Anderson, 2017; Doucet & Aseltine, 2003; Ford et al., 2011).

In general, these adults are less satisfied, have more negative perceptions of their partners, and have more problems in their romantic relationships (Coleman & Widom, 2004; Paradis & Boucher, 2010; Perry, DiLillo, & Peugh, 2007; Riggs, Cusimano, & Benson, 2011). Romantic relationships among adults with ACEs are less stable due to increased levels of infidelity and lower levels of conflict resolution skills leading to divorce (Colman & Widom, 2004; DiLillo, Lewis & Di Loreto-Colgan, 2007). Further, the association between ACEs and negative outcomes in romantic relationships may be more pronounced in women in comparison to men (DiLillo et al., 2007; Perry et al., 2007).

Gender Differences in Impact of ACEs on Health

Multiple studies report an association between childhood adversity and relationship problems for women but not for men (DiLillo et al., 2007; Perry et al., 2007). When women have a history of childhood difficulty, they tend to be in romantic relationships that lack personal connection and intimate communication (DiLillo et al., 2007). These women are more likely to fear intimacy and exhibit disconnecting, self-sacrificing, and timid interpersonal behaviors (Paradis & Boucher, 2010). They are also more likely to have lower levels of relationship satisfaction and higher levels of infidelity compared to men who have experienced childhood adversity (Coleman & Widom, 2004). Additionally, these women have more negative perceptions about sexuality, perceiving sexual relationships as platforms to perform power and control (DiLillo et al., 2007).

Likewise, men with a history of childhood adversity were also found to have trouble with emotional connection and intimacy in close relationships (Paradis & Boucher, 2010). However, there are some differences in how the relational mechanisms unfold. For example, men who experienced childhood physical abuse were found to be more dominant whereas women were more timid (Paradis & Boucher, 2010). In addition, two of the studies examining the relational impact of ACEs among men and women found that unlike women, childhood adversity had no impact on men's relationship outcomes (DiLillo et al., 2007; Perry et al., 2007). These findings indicate differences among men and women in the level and type of impact childhood adversity has on adult romantic and sexual relationships. However, one key finding that was strong among men and women was that adults with difficult childhoods were significantly more likely to separate or divorce in comparison to individuals with fewer

ACEs (Coleman & Widom, 2004). This finding is important in the context of families with children because divorce is one of the ten adverse experiences in childhood that contribute to these poor relational outcomes in adulthood (Felitti et al., 1998).

Additionally, beyond parent separation, conflict and other negative relational patterns among parents impact their children's ability to function interpersonally across the lifespan (Stocker & Youngblade, 1999).

Impact of Parent Relationships on Children

The ways parents interact in their romantic relationships impact their parenting methods and effectiveness of their parenting styles (Krishnakumar & Buehler, 2000; Millings, Walsh, Hepper, & O'Brien, 2013). Children with parents who have high quality romantic relationships are more likely to develop higher quality relationships with peers (Lucas-Thompson, & Clarke-Steward, 2007; Markiewicz, Doyle, & Brendgen, 2001). These children exhibit relationship skills such as demonstrating empathy, comforting a peer who has been hurt, and providing help to someone who is in need (Markiewicz et al., 2001). Alternatively, children in families with parental conflict are more likely to struggle developing healthy relationships with their siblings and friends (Stocker & Youngblade, 1999). Specifically, conflict in parent relationships is linked to conflict and rivalry among siblings and these negative relational outcomes are implicated by children's internal feelings, often blaming themselves for the marital conflict (Stocker & Youngblade). These negative relationships among parents are also likely to extend to negative parent-child relationships (Cui, Durtshi, Donnellan, Lorenz, & Conger, 2010). For example, parents who are frequently in conflict or aggressive toward one another are more likely to engage in harsh discipline strategies and aggressive behaviors with

their children (Cui et al., 2010; Krishnakumar & Buehler, 2000). These family-level interactions can be devastating for children across their lifespan into adulthood. Due to research demonstrating that parents in the United States are significantly less satisfied in general and specifically with their relationships (Glass, 2016; Shapiro, Gottman, & Carrere, 2000), this is an important focal point to examine.

Research on Risk and Protective Factors of Romantic Relationships

Research has demonstrated risk and protective factors for sexual and relationship well-being among romantic partners (Mark, 2012, 2014; Sprecher, 2002). For example, higher levels of sexual desire, sexual satisfaction, and perceptions of sexual activity as rewarding are associated with more satisfied romantic relationships (Byers & MacNeil, 2006; Lawrance & Byers, 1995; Mark, 2012, Sprecher, 2002). Alternatively, desire discrepancies (differences in the levels of sexual desire between partners in a couple; Mark, 2014), perceptions of sexual activity as costly, and infidelity are associated with lower relationship satisfaction and stability (Amato & Previti, 2003; Lawrance & Byers, 1995; Mark, 2014). Therefore, understanding the impact of ACEs on risk factors for relationship health may provide insight into the relational dynamics couples are engaged in before ending their relationships in divorce. These findings have possible implications in a clinical and educational setting among parents. As such, the following research questions were answered:

RQ1: Are there differences in Adverse Childhood Experiences (ACE) scores, sexual desire, sexual satisfaction, relationship satisfaction, sexual rewards and costs, and infidelity among partnered men and women with children

RQ2: Is ACE score associated with sexual desire among partnered men and women with children?

RQ3: Is ACE score associated with sexual satisfaction among partnered men and women with children?

RQ4: Is ACE score associated with relationship satisfaction among partnered men and women with children?

RQ5: Is ACE score associated with sexual rewards and costs among partnered men and women with children?

RQ6: Is ACE score associated with infidelity among partnered men and women with children?

RQ7: Do individuals' ACE scores impact their partners' sexual desire in the context of intact couples with children?

RQ8: Do individuals' ACE scores impact their partners' sexual satisfaction in the context of intact couples with children?

RQ9: Do individuals' ACE scores impact their partners' relationship satisfaction in the context of intact couples with children?

RQ10: Do individuals' ACE scores impact their partners' sexual rewards and costs in the context of intact couples with children?

Methods

Procedure

The current study recruited participants who were at least 18 years old and in long-term (3+ years) mixed sex romantic partnerships with at least one child (17 years old or younger) living in the home on a full-time basis. Three years or more was set as

the requirement for relationship length due to previous research indicating that couples transition from the intense passionate love to a more stable level of love and connection between 2-4 years after beginning a relationship (Hatfield, Pillemer, O'Brien, & Le, 2008; Hatfield, Rapson, & Martel, 2007). Female partners were required to be the biological mother of their child/ren and premenopausal. Participants were required to be currently residing in the United States (US) due to research indicating that parents in the US (compared with other countries) have a wider gap in well-being in comparison to non-parents (Glass, 2016). Recruitment began in February of 2017 and continued until September 2017. The current study utilized social media (e.g., Twitter, Facebook), parenting listservs, a local radio station PSA, in addition to hanging posters on a mid-sized university campus and the surrounding community to recruit participants.

Individuals interested in participating in the study followed an initial link to a description of the study followed by a consent form. After consenting to participate in the study, participants were directed to the first page of the questionnaire and they could skip questions and/or stop the survey at any time. After a participant completed the survey, they were asked to provide their partners' email address and an email was automatically sent to their partner to complete the survey. This way, partners were linked together by a unique couple ID. Upon completion of the survey, participants received a \$10 Amazon gift card (\$20 per couple).

Participants

There were 93 couples included in the current study consisting of 93 biological mothers and their male partners ($N = 186$). Couples were in a relationship for an average length of 9.89 years ranging from 3-20 years. Most (85.5%) individuals were

married and living together; the remaining (14.5%) were partnered and living together and the majority of participants were in monogamous relationships (95.7%). Most participants (91.4%) identified as heterosexual and others identified as bisexual (5.4%), pansexual (2.7%), and questioning (0.5%). The average age for women was 32.97 years old and the average age for men was 34.81 years old with a range of 21-50 years. The majority of the sample were White (88%) and college educated with 69.4% having a four-year college degree or graduate level degree. The most frequently reported religious affiliation was Christian/Catholic (42%) with “religiously unaffiliated” as the second most frequently reported (36.6%). Couples had median of two children and most women (78.5%) had last given birth six or fewer years ago (without any giving birth in the six weeks prior to participation). See *Table 1* for additional demographic characteristics.

Measures

Demographic information including age, relationship length, religion, race, number of children, and time since last birth were examined in addition to a variety of constructs measuring sexual and relational outcomes and psychological variables that may be cofounders, outlined below.

Sexual desire. The Sexual Desire Inventory (*SDI*; Spector, Carey, Steinburg, 1996) was utilized to measure sexual desire. This instrument consists of 14-items that measures dyadic sexual desire (*SDI-D*; desire to engage in sexual activity with a partner) and solitary sexual desire (*SDI-S*; desire to engage sexually with oneself) on a 9-point scale. The current study utilized the dyadic sexual desire subscale which consisted of items including “during the last month, how often would you have liked to

engage in sexual activity with a partner?” Higher scores indicate higher levels of dyadic desire. See *Appendix A* for scale items. For the dyadic scale, the internal consistency coefficient for men was 0.79 and 0.76 for women.

Sexual desire discrepancies. Desire discrepancy scores were measured by subtracting the SDI-D total score of the male participants from the SDI-D total score of their female partners. A score of zero indicated no desire discrepancies between partners within the couple, positive scores indicated that men’s sexual desire was higher than women’s and negative scores indicated that women’s scores were higher than men’s.

Sexual satisfaction. Sexual satisfaction was measured utilizing the Global Measure of Sexual Satisfaction (*GMSEX*; Lawrance & Byers, 1992). This instrument measures responses to the question “overall, how would you describe your sexual relationship with your partner?” Responses are all on a 7-point scale including the following dimensions: bad/good, unpleasant/pleasant, negative/positive, unsatisfying/satisfying, worthless/valuable. Higher scores indicate higher levels of sexual satisfaction. See *Appendix B* for scale items. For the current study, the internal consistency coefficient for this scale was 0.93 for men and 0.94 for women.

Relationship satisfaction. Relationship satisfaction was measured utilizing the Global Measure of Relationship Satisfaction (*GMREL*; Lawrance & Byers, 1995). This item measures responses to the question “In general, how would you describe your overall relationship with your partner?” Responses are on a 7-point scale including the same dimensions as listed in the *GMSEX* measure. Higher scores indicate higher levels

of relationship satisfaction. See *Appendix B* for scale items. For the current study, the internal consistency coefficient for this scale was 0.93 for men and 0.94 for women.

Reward/cost of sexual relationship. The degree to which the sexual relationship is rewarding or costly was measured utilizing the Exchanges Questionnaire (Lawrance & Byers, 1995). The GMSEX, GMREL, and Exchanges Questionnaire are all included in the Interpersonal Exchange Model of Sexual Satisfaction Questionnaire (IEMSSQ) created by Lawrance and Byers (1995). The Exchanges Questionnaire measures the degree to which participants perceive their sexual relationship as rewarding or costly and the equality of reward/costs between them and their partner. The scale includes six items measuring rewards of the sexual relationship (REW), costs of the sexual relationship (CST), rewards relative to one's expectations (CLrew), costs relative to one's expectations (CLcst), and the perceived equality of rewards (EQrew) and costs (EQcst) between oneself and one's partner. Responses are on a 9-point scale ranging from "not at all rewarding [costly]" to "extremely rewarding [costly]", "much less rewarding [costly] in comparison" to "much more rewarding [costly] in comparison", and "my rewards [costs] are much lower" to "my rewards [costs] are much higher." The difference between one's rewards and costs or relative rewards and costs was calculated by subtracting $REW - CST$ and $CLrew - CLcst$. Positive numbers indicate that rewards or relative rewards are higher than costs or relative costs. See *Appendix C* for scale items. The current study utilized REW-CST, CLrew-CLst, EQrew, and EQcst as four separate variables, as Lawrance and Byers (1995) did in their original manuscript describing the Exchanges Questionnaire.

Infidelity. Infidelity was measured by asking participants to answer “yes” or “no” to the following question: “In the context of your current relationship, have you ever done something sexually with someone else that could have jeopardized or hurt your current relationship?” This measure has been used in previous work examining the sexual and relational effects of infidelity (e.g., Mark, Janssen, & Milhausen, 2011).

Depression. Depression was measured utilizing the Beck Depression Inventory II (*BDI-II*; Beck, Steer, Ball, & Ranieri, 1996). This 21-item instrument measures severity of symptoms including sadness, loss of pleasure, irritability, and pessimism on a 4-point scale ranging from mild to severe. High scores on this scale indicate high levels of depressive symptomology. See *Appendix D* for items. For the current study, the internal consistency coefficient was 0.89 for men and 0.91 for women.

Self-esteem. Self-esteem was measured utilizing a 10-item global Self-Esteem Scale (*SES*; Rosenberg, 1965). This measurement requires participants to answer questions such as “I feel that I am a person of worth, at least on an equal basis with others” utilizing a 7-point scale ranging from 1 = “strongly disagree” to 7 = “strongly agree”. High scores on this scale indicate high levels of self-esteem. See *Appendix G* for items. For the current study, the internal consistency coefficient for this scale was 0.87 for men and 0.87 for women.

Adverse childhood experiences (ACEs). ACEs were measured utilizing a 10-item scale created to assess experiences of childhood trauma (Felitti et al., 1998). Scores were calculated in two ways. First, total ACE scores were calculated by taking the sum of all endorsed items. Next, an ordinal ACE score was utilized to assess differences between men and women in the couple due to the large distribution of

individuals that report zero ACEs (in this case the mean scores are not applicable). Therefore, the ordinal version of the ACE score included 0 = 0 ACEs, 1 = 1 ACE, 2 = 2 ACEs, 3 = 3 ACEs, and 4 = 4 or more ACEs. Higher scores indicated more adverse experiences in childhood. Scale reliability and validity have been demonstrated (see Dube et al., 2004). See *Appendix J* for items. For the current study, the internal consistency coefficients for this scale were 0.76 for men and 0.78 for women.

Data Analysis

Due to the non-normality of seven of the nine (sexual satisfaction, relationship satisfaction, infidelity, EQcst, EQrew, CLrew-CLcst, and REW-CST) outcome variables in the current study, non-parametric univariate and bivariate tests were conducted to assess significant relationships before building the multivariate models. First, a Wilcoxon signed rank test was conducted to assess differences in ACE scores (ordinal ACE scores), dyadic desire, sexual satisfaction, relationship satisfaction, EQcst, EQrew, CLrew-CLcst, and REW-CST among men and women in the couple. A Chi-Squared test was conducted to assess differences between men and women in rates of infidelity. Then, a Wilcoxon Ranked Sum test was conducted to examine differences in ACE scores between those who had engaged in infidelity and those who had not among men and women separately. Next, Spearman's Rho correlations were conducted between ACE scores and sexual desire, desire discrepancy, sexual satisfaction, relationship satisfaction, EQcst, EQrew, CLrew-CLcst, REW-CST with men and women separately due to the interconnectivity of partners within a couple (Kenny & Cook, 1999; Kenny, Kashy, & Cook, 2006). In addition, bivariate Spearman's Rho correlations with variables that may impact sexual and relational outcomes were conducted (e.g., age, relationship

length, time since last birth, and number of children, depression, and self-esteem) in order to control for significant contextual variables at the multivariate level. Variables significant at the bivariate level were included in the multivariate models.

Next, a series of multiple linear or logistic regressions (depending on outcome variable) were conducted among men and women separately to assess significant associations with ACE scores and sexual desire, desire discrepancies, relationship satisfaction, sexual satisfaction, sexual rewards and costs, and infidelity. By incorporating only variables that were significant at the bivariate level through non-parametric testing into the regression models and considering that statisticians report that only extreme departures from normality may impact study results (more (Lumley et al., 2002), multiple linear regression models were a sufficient means of conducting testing to examine the impact of ACEs on sexual and relational outcomes. Finally, structural equation models (SEM) were conducted using the Actor-Partner Interdependence Model (APIM; Kenny & Cook, 1999; Kenny et al., 2006) in which men and women were nested within the couple and actor and partner effects were analyzed with ACE score predicting outcome variables that were significant at the bivariate level (sexual desire, desire discrepancies, sexual satisfaction, relationship satisfaction, and sexual rewards and costs) to examine partner-level impact of ACEs. Estimates were unstandardized to allow for comparisons across dyads (Kenny et al., 2006). Chi Square, Root Mean Square Error of Approximation (RMSEA), and Comparative Fit Index (CFI) were used to determine model fitness (Byrne, 2010).

Results

A Wilcoxon signed rank test was conducted to examine differences in ACE scores, sexual desire, sexual satisfaction, relationship satisfaction, depression, and self-esteem between men and women in the couple. Results indicated that women's ACE scores were significantly higher than men's ACE scores $z = -1.98, p = .05$. In addition, men had significantly higher dyadic desire compared to women $z = 4.81, p < .001$. Men experienced higher levels of REW-CST compared to women, $z = -2.01, p = .05$ and CLrew-CLcst compared to women, $z = 2.45, p = .01$. Women's EQrew scores indicated that they were significantly more likely to report that their rewards in the sexual relationship were lower than their partners compared to men, $z = -3.37, p < .001$. Women also reported significantly higher levels of depression compared to men $z = -2.40, p = .02$. Additionally, there were no significant gender differences in reports of engaging in infidelity between men ($n = 5; 5.4%$) and women ($n = 7; 7.3%$), $\chi^2(1) = 0.38, p = .54$. See *Table 4.2* for differences between men and women in the couple.

Bivariate Results

A Mann-Whitney U test indicated that men who have engaged in infidelity in the context of their current relationships had significantly higher ACE scores compared to the ACE scores of men who had not engaged in infidelity ($z = -2.56, p = .01$). Depression was also significantly correlated with ACE score for men ($r_s = .25, p < .05$). In addition, a variety of contextual variables were correlated with outcome variables for men. For example, time since last birth was correlated with sexual satisfaction ($r_s = .21, p < .05$) and relationship length was significantly correlated with EQcst ($r_s = -.27, p < .05$) for men. Additionally, self-esteem was correlated with EQcst ($r_s = .22, p < .05$), REW-CST ($r_s = -.24, p < .05$), sexual satisfaction ($r_s = -.22, p < .05$), and relationship satisfaction ($r_s =$

= -.21, $p < .05$) and depression was correlated with sexual satisfaction ($r_s = -.27, p < .05$) and relationship satisfaction ($r_s = -.33, p < .01$).

For women, there were no differences in ACE scores between women who engaged in infidelity and women who had not. However, ACE score was significantly correlated with the equality of costs (EQcst) in the sexual relationship between partners such that higher ACE scores were associated with women reporting more sexual costs in the relationship compared to their partners ($r_s = -.22, p < .05$). ACE scores were also correlated with depression ($r_s = .24, p < .05$) and self-esteem ($r_s = .27, p < .01$). No other variables were correlated with ACE score among women in the current study. However, contextual factors were correlated with variables of interest. EQcst was correlated with depression ($r_s = -.28, p < .01$). Dyadic desire was correlated with depression ($r_s = -.28, p < .05$). Desire discrepancy was correlated with depression ($r_s = .22, p < .05$). Sexual satisfaction was correlated with depression ($r_s = -.34, p < .01$). Relationship satisfaction was correlated with depression ($r_s = -.26, p < .05$) and self-esteem ($r_s = -.22, p < .05$). For bivariate values correlated with ACEs, see *Table 3*.

Multivariate Results

Next, a series of multiple linear regression models were conducted that incorporate variables that were significant at the bivariate level. First, a multiple linear regression model was conducted with ACE score predicting EQcst for women after controlling for depression. The model was significant for predicting EQcst *Adjusted R*² = .09, $F(2, 85) = 5.46, p < .05$ such that depression ($\beta = -.23, t = -2.21, p < .05$) and ACE score predicted EQcst ($\beta = -.20, t = -1.93, p = .05$). Therefore, after controlling for

depression, higher women's ACE scores significantly predicted less equal sexual costs between partners with women's sexual costs higher than their partners' sexual costs.

Next, a logistic regression model was conducted with ACE score predicting whether or not one has engaged in infidelity among men after controlling for depression. Results indicated that for every one unit increase in ACE score, men were 39% more likely to engage in infidelity in the context of their current relationships. See *Table 4* for logistic regression results.

Nested Models

Finally, to test partner effects of ACE scores, a structural equation model (SEM) was conducted with variables that were significant at the bivariate level. Using AMOS 24, the SEM was conducted in which ACE score predicted EQcst after controlling for depression and self-esteem. The model demonstrated strong model fitness: $\chi^2(2) = 0.96$, $p = .62$, CFI = 1.00, RMSEA = .00. No actor effects were found for men or women. Partner effects were found for men's ACE score predicting women's EQcst ($B = -.14$, $p < .05$). These findings indicated that the higher a male partner's ACE score the more costly his female partner perceived her sexual relationship with him. See *Figure 1* for results of the SEM.

Discussion

The current study provides insight into the ways in which ACEs impact sexual and romantic relationships among a sample of couples with children living in the home. Findings indicated differences among men and women in the impact of ACE score on their romantic relationships and highlight the strength of men's ACE score impacting the couples' relationship health. Additionally, the current study provides evidence for partner

effects of ACE score on a more nuanced sexual outcome, in comparison to infidelity or partner conflict, that may contribute to relationship instability.

One primary finding of the current study was that there were no differences between men and women in ACE score. However, higher ACE scores among women predicted perceptions of their sexual relationships as more costly for them in comparison to their male partners. Additionally, when individuals were nested within their romantic couples, partner effects were found such that women's perceptions of the inequality of costs in their sexual relationships (EQcst) were predicted by their male partners' ACE scores. These findings provide interesting information about the influences of ACEs on the relational interactions and perceptions among mothers and their romantic partners that may contribute to relationship instability. For example, equality of sexual costs between partners predicts changes in sexual satisfaction over time (Byers & MacNeil, 2006). Therefore, when partners have an unequal distribution of sexual costs, sexual satisfaction declines as time passes (Byers & MacNeil, 2006). Declines in sexual satisfaction have been found to predict marriage instability and less commitment toward the relationship for men and women over time (Sprecher, 2002; Yeh, Lorenz, Wickrama, & Conger, 2006). Declines in sexual satisfaction also predict likelihood of relationship dissolution for men (Sprecher, 2002). The current study findings demonstrate a possible pathway for couples with ACEs that may begin with a female partner experiencing more sexual costs in comparison to her partner leading to lower levels of sexual satisfaction over time and eventually lower levels of commitment and relationship stability. However, more research is needed to outline these pathways through longitudinal, dyadic data collection.

In addition, the first finding also provides possible support for a theory described by Walker and colleagues (2009) suggesting that ACEs do not directly impact relationship satisfaction, but they impact interpersonal processes among couples that likely accumulate over time and lead to negative relational outcomes. For example, ACEs impact internal processes including depression that may affect one's interactions with their partner in a negative way (Perry et al., 2007). Perry and colleagues (2007) reported that when internal mental health issues were accounted for, the connection between childhood adversity and relationship problems was significantly reduced. Therefore, the idea is that ACEs do not have a direct impact on relationship outcomes, but they do hinder likelihood of positive relational processes. Alternatively, other research has found a more direct link between ACEs and relationship functioning (Riggs et al., 2011). Riggs and colleagues (2011) suggest that ACEs impact the likelihood one will develop insecure relational attachments and due to these attachments, they will have difficulty adjusting to their relationships. The current findings support the notion that ACEs impact relational processes that may increase likelihood of relationship instability.

A second important finding in the current study was that ACE score predicted likelihood of infidelity for men, not for women. This is consistent with previous work reporting a connection between infidelity and childhood maltreatment (Yumbul, Cavusoglu, & Guyimci, 2010). However, the gender difference found here is inconsistent with previous research that has reported a significant association between infidelity and childhood maltreatment among women, not men (e.g., Coleman & Widom, 2004; Whisman & Snyder, 2007). Specifically, if women had experienced abuse

(physical, emotional, sexual) or neglect (physical or emotional) they were more likely to engage in infidelity in the context of their romantic relationships (Coleman & Widom, 2004; Whisman & Snyder, 2007). Women with this adverse history were also found to have less emotional closeness and affection in their romantic relationships in comparison to women without childhood adversity (DiLillo et al., 2007). Interestingly, previous work found no association between men's ACEs and relationship functioning (DiLillo et al., 2007). This may be due to the study utilizing a sample of college aged students, whereas in the current study, participants were in their mid-thirties and had children of their own. Therefore, the current sample may have experienced a stronger accumulation of negative relational factors leading to negative outcomes for men. In addition, one of the current study limitations was that female participants were required to be the biological mother of at least one child living in the home, however there were no biological parent requirements for male participants. Therefore, there may have been men in the current study that were not the biological fathers of the children.

Additionally, the rates of infidelity among men and women in the current study were lower (5% for men and 7% for women) than rates identified in previous work using the same measure (59.9% for men and 40.1% for women; Mark et al., 2011). However, parent status was not included as a contextual variable in this previous research. Nonetheless, the current study findings indicated that men's ACE score still predicted likelihood of men engaging in infidelity in the context of their relationships. As other research suggests that infidelity is the most cited reason for divorce and one of the strongest predictors of later divorce among intact couples (Amato & Previti, 2003; Amato & Rogers, 1997) this is a concerning finding. Further, these couples are full-time

caretakers of children in the home and risk of divorce also indicates that the children are at risk of additional adversity in their lives as well (Afifi, Boman, Fleishe, & Sareen, 2008). For example, in a nationally representative sample, people who experienced parental divorce or separation in childhood had significantly more mental health concerns in comparison with individuals whose parents did not divorce (Afifi et al., 2008).

Taken together, the current findings indicate that among mothers and their male romantic partners, male ACE score plays a significant role in sexual relationship health among both partners. These findings provide insight into the ways in which a man's ACE scores impact his partners' sexual costs and his own infidelity, both of which may lead to relationship instability as time passes (Amato & Previti, 2003; Byers & MacNeil, 2006).

Strengths and Limitations

Though the current study has strengths, there are a variety of limitations. For example, there were relatively low rates of infidelity in the current sample. Therefore, these findings should be taken lightly and within the context they are presented. Additionally, though the current study eludes to issues impacting relationship stability, this construct was not measured directly. Future work in this area would benefit from incorporating a measure of relationship stability and conducting possible mediating or moderating effects of other variables that may impact relationship stability over time instead of speculating that these constructs impact relationship stability in the current sample because they have in past studies. There are also a variety of other possible protective factors that have not been incorporated into the current study that may offer

new information about relational resilience in the context of ACEs among adults. Future research would benefit from incorporating a wide range of possible constructs that have been shown to impact relationship stability over time.

Another limitation of the current study is that the Beck Depression Inventory (BDI-II) was used to measure depression (included as a possible confounding variable). However, there is evidence that the BDI-II does not capture significant symptomology for postpartum depression in some women (Beck & Gable, 2001). One study found that it was only able to capture 56% of women who were experiencing postpartum depression (Beck & Gable, 2001). Therefore, this is a measurement limitation due to some women with children having infants in the current study.

A final limitation of the current study is that it included a data set that did not completely meet criteria for the assumption of normality. Though common in social sciences, (Blanca, Arnau, Lopez-Montiel, Bono, & Bendayan, 2013), non-normal data presents issues with parametric testing. However, the current study incorporated parametric testing due to the limitations of other methodologies at the dyadic level. Though some researchers report that results of parametric testing assuming linear relationships are minimally impacted unless the distribution extremely deviates from normality (not the case in the current study; Lumley, Diehr, Emerson, & Chen, 2002), this is a limitation of the current study. Due to missing data present in the current study, the SEM analyses did not benefit from the “asymptotically distribution free” indicator in AMOS 24 that supports data with non-normal properties. Due to the utilization of non-normal data in SEM possibly resulting in conservative estimates of model fitness (Tomarken & Waller, 2005), there may be additional significant findings that were not

captured in the current study. Future research may benefit from including no missing data in their SEM analyses to benefit from utilizing this indicator.

Clinical Implications

There are significant clinical implications of the current findings. For example, given these negative associations with ACEs, healthcare professionals should routinely assess ACE score among individuals and couples. After assessing ACE score, clinicians have the tools to work with couples to discuss their relationship health and ascertain risk for negative relational outcomes that may impact their children. Additionally, healthcare providers would be equipped to refer couples to a specific relational wellness plan that would benefit them such as couples' therapy, individual medications, or relationship training.

Due to the relatively young age of children in the current sample and the fact that all of the couples were still in-tact, there may be additional protective factors that were not captured in the current study. Clinical expertise may be necessary to identify the unique factors for each couple that would help increase relationship stability. Positive relationships can offer resilience for individuals who have been exposed to adversity in childhood (McCarthy & Maughan, 2010). Specifically, having the capabilities to work through adversities in childhood may contribute to one's ability to develop and maintain healthy relationships in adulthood (McCarthy & Maughan, 2010). Perhaps by taking the time to help men and women identify their relational strengths, communicate those strengths to one another, and provide education about the risks associated with ACE score on relationships, clinicians can equip couples with the tools to create a healthy relational environment for their families.

Future Research Implications

The current study provides new research about the impact of men's ACE score on women's perceptions of equality of sexual costs in the relationship. However, due to the study sample size, more research in a larger sample of couples is needed to strengthen these findings. Additionally, future research may benefit from incorporating additional individual and couple-level protective factors that couples may be engaging in that were not captured by the current findings. These protective factors may include communication patterns (Doohan & Manusov, 2004; Shapiro et al., 2000), relational equity (Van Yperen & Buunk, 1990), and partners' support for one another in pursuing goals (Overall, Fletcher, & Simpson, 2010). In addition, research demonstrates that individuals with higher ACE scores are more likely to be single in comparison to individuals with lower ACE scores (Anderson, 2017). Therefore, understanding the reasons couples remain together despite this relational risk is an important and neglected area of research. Further, more dyadic and event-level research is needed to capture the day-to-day experiences of these couples and examine more nuanced risk and protective factors that may impact relationship stability and functioning over time.

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Table 5.1. *Demographic characteristics of study participants*

Characteristic	<i>N</i> = 186	%
Gender		
Male	93	50
Female	93	50
Relationship Status		
Married	159	85.5
Partnered and cohabitating	27	14.5
Relationship Type		
Monogamous	178	95.7
Consensually non-monogamous	8	4.3
Race/Ethnicity		
African American	8	4.3
White/Caucasian	164	88.2
Native American	9	4.8
Asian/Asian American	2	1.1
Hispanic	3	1.6
Sexual Orientation		
Heterosexual	170	91.4
Bisexual	10	5.4
Questioning	1	.5
Pansexual	5	2.7
Education		
Some high school	2	1.1
High school graduate	14	7.5
Some college/2-year degree	39	21
Bachelor's degree	77	41.4
Graduate degree	52	28
Other	2	1.1
Religious Affiliation		
Catholic	20	10.8
Christian, non-Catholic	69	37.1
Jehovah's Witness	1	.5
Jewish	3	1.6
Mormon	1	.5
Unaffiliated	68	36.6
Atheist	9	4.8
Other	8	4.3

Table 5.2. *Differences in variables of interest between men and women*

Variable	Men (N = 93)	Women (N = 93)	<i>Wilcoxon</i> <i>Statistic (z)</i>
	Couples in which men had higher scores	Couples in which women had higher scores	
ACE score	26	39	-1.98*
GMREL	31	41	-.78
GMSEX	45	39	-.47
Dyadic Desire	67	22	-4.81***
Exchange Model	48	32	-2.01*
REW-CST			
CLrew-CLcst	45	27	-2.45**
EQrew	26	46	-3.37***
EQcst	26	31	-.85
Depression	31	47	-2.40*
Self-Esteem	35	48	-1.18

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 5.3. *Bivariate results of men and women's ACE score and variables of interest*

	Men's ACEs (N = 93)	Women's ACEs (N = 93)
Bivariate Spearman's Correlations		
Relationship Satisfaction	-.15	.10
Sexual Satisfaction	-.09	-.004
Dyadic Desire	-.08	-.16
Desire Discrepancy	-.06	.16
Exchange Model		
REW-CST	.09	.07
CLrew-CLcst	-.09	-.101
EQrew	.01	.15
EQcst	.07	-.22*
Depression	.25*	.24*
Self-Esteem	.06	.27**
Bivariate Mann-Whitney U test		
Infidelity	-2.56**	-.11

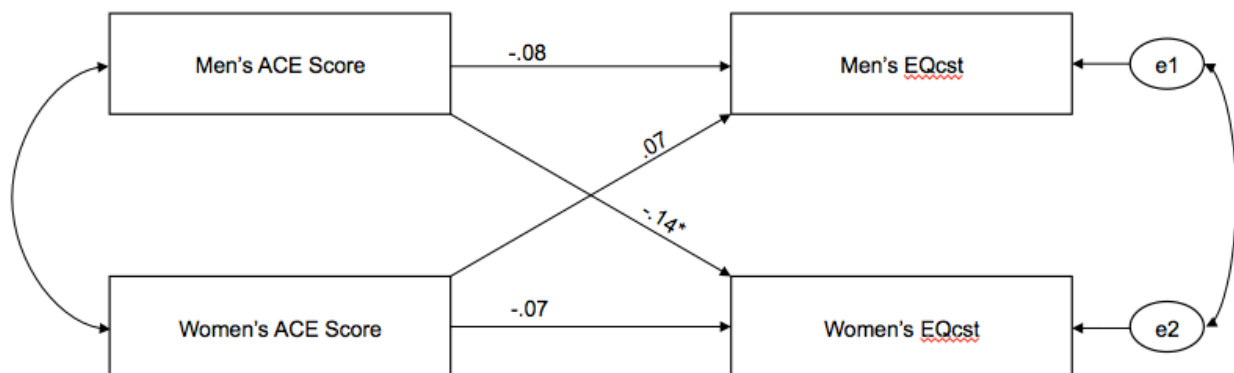
* $p < .05$, ** $p < .01$

Table 5.4. Logistic regression results of ACE score predicting infidelity among men (N = 93)

	<i>B</i>	<i>SE</i>	Wald	Exp(<i>B</i>)
Depression	.09	.06	2.47	1.09
ACE Score	.39	.20	3.85*	1.47

* $p < .05$, ** $p < .01$

Figure 5.1. Actor and partner effects for ACE score predicting EQcst



* $p < .05$, ** $p < .01$

CHAPTER 6

Manuscript 3: Positive communication, partner appraisals, and sexual rewards and costs among mothers and their long-term male partners: Impact on sexual desire, desire discrepancies and satisfaction

Primary proposed journal: *Journal of Sex and Marital Therapy*

Secondary proposed journals: *Sex and Relationship Therapy*

Abstract

Parents in the US struggle to maintain their sexual and relational health over time and have a wider gap in happiness between parents and non-parents in comparison to other countries. Therefore, identifying positive skills and interpersonal perceptions that impact sexual and relational outcomes may be one way to target parents' overall sexual and relational well-being. As such, the current study aimed to investigate the role of positive communication, partner appraisals, and sexual rewards and costs on sexual desire, desire discrepancies, and satisfaction among mixed sex couples with mothers and their romantic partners. Data were collected from 93 couples ($N = 186$) made up of biological mothers of children living in the home on a full-time basis and their long-term romantic partners. Utilizing the Actor-Partner Interdependence Model as an analytic framework, results indicated that for women, lower levels of desire discrepancies and higher levels of dyadic desire and relationship satisfaction were significantly predicted by one's relative sexual rewards (expectations of rewards compared to actual rewards) exceeding one's relative sexual costs (expectations of costs compared to actual costs; $CL_{rew} - CL_{cst}$). Additionally, women's positive communication scores predicted higher levels of sexual satisfaction and relationship satisfaction and more positive partner appraisals predicted higher levels of relationship satisfaction for women. Actual sexual rewards compared to costs ($REW - CST$) also predicted sexual and relationship satisfaction for women. For men, positive communication and actual rewards compared to costs predicted sexual satisfaction and higher levels of positive communication and positive partner appraisals predicted higher levels of relationship satisfaction. At the couple-level, higher levels of positive communication predicted higher sexual and relationship satisfaction scores with full actor and partner effects. Higher $CL_{rew} - CL_{cst}$ scores predicted higher levels of relationship satisfaction with full actor and partner effects and actor effects for dyadic desire among women. Finally, more positive appraisals of partners predicted higher levels of relationship satisfaction with full actor and partner effects for men and women with children. The current findings have clinical, educational, and future research implications for parents in the US.

Key Words: Mothers, Parents, Sexual Desire, Satisfaction, Positive Communication, Appraisal, Rewards, Costs.

Positive communication, partner appraisals, and sexual rewards and costs among mothers and their long-term male partners: Impact on sexual desire, desire discrepancies and satisfaction

Introduction

Parents struggle to maintain their sexual and relational health (Ahlborg, Rudeblad, Linner, & Linton, 2008; Pastore, Owens, & Raymond, 2007; Risch, Riley, & Lawler, 2003; Shapiro, Gottman, Carrere, 2000). Parents report lower levels of relationship satisfaction, lower rates of sexual activity, and higher levels of sexual desire discrepancies compared to their non-parent counterparts (Ahlborg et al., 2008; Apt & Hurlbert, 1992; Pastore et al, 2007; Shapiro et al., 2000). Mothers in particular, struggle to maintain sexual desire in the context of their romantic relationships (Botros, Abramov, Miller, Sand, Gandhi, Nickolov, Goldberg, 2006; Sims & Meana, 2010) and report difficulty separating their sexuality from their roles as mothers (Sims & Meana, 2010). Furthermore, these sexual and relational issues for parents are not subject to the short-term periods of transitioning into parenthood (e.g., pregnancy, first year postpartum; Ahlborg et al., 2008). This last point may be especially applicable to parents in the United States (US), given that there is a substantial gap in well-being among parents and non-parents in the US compared to in other countries (Glass, 2016).

Targeting positive couple-level interactions and perceptions may be an intervention strategy for building resilience against the negative relational and sexual outcomes associated with parents (Shapiro et al., 2000). A body of research exists demonstrating that positive relational interactions and perceptions have a significant impact on sexual desire and overall relationship well-being for romantic couples

(Ahlborg et al., 2008; McCall & Meston, 2006; Sacco & Phares, 2001; Shapiro et al., 2000). In addition, individuals' perspectives of the equality of sexual rewards and costs between partners in their relationships impact sexual satisfaction for parents more severely than for non-parents (Lawrance & Byers, 1995). Taken together, positive interpersonal interactions, appraisals of one's partner, and perspectives about sexual rewards/costs in the relationship may provide specific skills and topics to target in an educational or clinical setting for parents. As such, the current study aimed to investigate the role of positive communication, partner appraisals, and perceptions of sexual rewards/costs in impacting sexual desire, desire discrepancies, sexual satisfaction and relationship satisfaction among a sample of mothers and their romantic partners.

Positive Communication

Good communication has been linked with overall relationships satisfaction, more positive perceptions of a romantic partner, and higher levels of sexual desire (Doohan & Manusov, 2004; Litzinger Y Gordon, 2005; Murray & Milhausen, 2012; Sanford, 2006). In a qualitative study asking women about the factors that impact their sexual desire, women cited partner-level, skill-based factors including "intimate communication" and describe this communication as conversations that promote closeness through positive disclosure (Murray & Milhausen, 2012). When a woman perceives her romantic partner expressing interest when she is disclosing something about herself, she tends to have higher levels of sexual desire for that partner (McCall & Meston, 2006). This finding indicates a bidirectional, communicative interaction between romantic partners may be impactful for women's sexual desire, even in the context of

long-term relationships. For parents, communication may be an important interpersonal skill that can protect against the negative impact of sexual desire discrepancies (Ahlborg et al., 2008). Ahlborg and colleagues (2005) suggest that communication is a central skill for recognizing and confronting the “tension” between sexual desire and the demands of a child.

Likewise, communication skills have a positive impact on overall relationship satisfaction (Shapiro et al., 2000). Romantic partners that exchange compliments and engage in constructive communication patterns are more likely to be satisfied in their romantic relationships (Doohan & Manusov, 2004; Litzinger & Gordon, 2005). For women in romantic partnerships, perceptions that their partners communicate fondness toward them are associated with higher levels of overall relationship satisfaction (Shapiro, et al., 2000). Self-disclosure about sexual and non-sexual topics is also associated with higher levels of relationships satisfaction and disclosure about sexual topics is positively linked to sexual satisfaction among women (MacNeil & Byers, 2005). For men, self-disclosure about non-sexual topics is related to sexual satisfaction and relationship satisfaction (MacNeil & Byers, 2005). This research indicates differences in the impact of communication strategies on sexual and relational outcomes for men and women.

Interestingly, sexual satisfaction and communication have independent links to relationship satisfaction in long-term couples (Litzinger & Gordon, 2005). For parents, this is particularly important because they struggle to maintain their sexual satisfaction and therefore, targeting communication skills may be a protective quality for parents’ relationship satisfaction over time (Ahlborg et al., 2008). For parents, effective

communication often contributes to better parental adjustment to the stresses associated with having a small child (Ahlborg & Strandmark, 2006). Communication may help parents to build and maintain intimacy and preserve relationship satisfaction after the birth of their children (Ahlborg & Strandmark, 2006; Ahlborg et al., 2008). There are four specific types of communication that have been identified as positive communication strategies in previous research including: positive disclosure, physical/emotional intimacy, exchanging compliments, and expressing fondness (Sanford, 2006; Shapiro et al., 2000). Overall, positive communication is important for all romantic relationships and this skill set may be vital for couples with children.

Partner Appraisal

In addition to positive interpersonal interactions with one's romantic partner, having positive perceptions of a romantic partner and the quality of sexual activity with that partner contributes to higher levels of sexual desire and overall relationship satisfaction in long-term couples (Mark, 2014; Sacco & Phares, 2001). For example, having positive perceptions of a romantic partner is significantly related to relationship satisfaction for couples and may even buffer against the negative impact of individual mental health issues (e.g., depression and low self-esteem) on satisfaction (Murray, Holmes, & Griffin, 1996; Sacco & Phares, 2001). For many satisfied couples, individuals have more positive appraisals of their partners than their partners have of themselves (Murray et al., 1996). This "idealization" has been linked to higher levels of relationship health and may be an important aspect of maintaining satisfaction in romantic relationships over time (Murray et al., 1996).

When individuals view their partners in a way that matches their own standards of what a romantic partner should be, they are less likely to experience declines in relationship satisfaction as relationship length increases (Murray et al., 2011). Interestingly, more positive appraisals of one's partner impact the type of communication one engages in with that partner such that positive appraisals predict positive communication interactions (e.g., expressing affection, positive disclosure, exchanging compliments; Sanford, 2006). Partner appraisals and the connection with communication patterns and relationship satisfaction may be particularly important for parents due to the overall decline in relationship satisfaction over time after transitioning into parenthood (Shapiro et al., 2000). Additionally, it may be important to understand how these partner appraisals impact sexual health for parents given that they experience strains on their sexual relationships (Risch et al., 2003).

Sexual Rewards and Costs

Another quality of relationships that may be significant for parents is perceptions of sexual activity as rewarding or depleting. For example, in a qualitative study, women in long-term relationships (most of which had children) endorse sexual activity as a task or chore rather than as a reward (Sims & Meana, 2010). Perceptions of the level of reward associated with sexual activity are linked to sexual satisfaction in long-term relationships and may be an important aspect of overall sexual health for couples (Lawrance & Byers, 1995).

On a daily level, the perceived quality of sexual experiences among coupled partners is linked to the sexual desire levels of both partners on a given day (Mark, 2014). Additionally, when a couple is experiencing a desire discrepancy (difference in

levels of desire between romantic partners), the female partner is less likely to perceive the sexual experience in a positive way (Mark, 2014). This is particularly applicable to couples who are parents due to research indicating that parents report difficulty managing desire discrepancies (Pastore et al., 2007). Further, mothers describe compensating for desire discrepancies in their relationships by engaging in sexual activity just to please their partners and fulfill their roles as wives (Sims & Meana, 2010; Trice-Black, 2010). These daily interactions may cumulatively represent overall rewards and costs in sexual relationships among these couples.

Lawrance and Byers (1995) developed the Exchange Questionnaire with a variety of measures of sexual costs and rewards in the sexual relationship including the perceived equality of sexual rewards and costs between partners, a comparison of rewards versus costs, and actual rewards and costs in comparison to what one might want or expect. When examining couples' perceptions of the equality of costs in the sexual relationship between partners, Lawrance and Byers (1995) reported a difference between parents and non-parents, such that when parents perceived there to be an inequality in costs of the sexual relationship, there were more unfavorable effects on sexual satisfaction in comparison to non-parents. Given that findings from qualitative studies indicate women who are mothers report prioritizing other aspects of their lives above sexuality, viewing sexual activity as a task, and focusing on their partners' sexual desires before their own (Sims & Meana, 2010; Trice-Black, 2010), understanding the degree of sexual reward versus costs is an important aspect of sexual health among parents.

As a whole, parents experience difficulty with their sexual and romantic relationships. Examining the interpersonal skills and perspectives that may help parents improve or maintain desire and satisfaction has application for future research, education, and clinical practices. Therefore, the purpose of the current study was to examine the associations between positive communication, partner appraisal, and perceptions of sexual rewards and costs and sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction among couples with children in long-term romantic relationships.

Actor-Partner Interdependence Model

The Actor-Partner Interdependence Model was utilized as an analytic framework for conceptualizing the interdependence between partners within a romantic couple (APIM; Kenny & Cook, 1999; Kenny, Kashy, & Cook, 2006). This model posits that individuals can impact their own sexual and relational outcomes (actor effects) and their partners' sexual and relational outcomes (partner effects; Kenny & Cook, 1999; Kenny et al., 2006). The APIM was utilized in the current study to contextualize men and women within their romantic partnerships and consider the ways in which individuals impact the sexual outcomes of their partners.

Research Questions

RQ1: Are positive communication, sexual rewards and costs, and positive partner appraisals associated with sexual desire among partnered men and women with children?

RQ2: Are positive communication, sexual rewards and costs, and positive partner appraisals associated with desire discrepancies among partnered men and women with children?

RQ3: Are positive communication, sexual rewards and costs, and positive partner appraisals associated with sexual satisfaction among partnered men and women with children?

RQ4: Are positive communication, sexual rewards and costs, and positive partner appraisals associated with relationship satisfaction among partnered men and women with children?

RQ5: Are individuals' positive communication, sexual rewards and costs, and/or positive partner appraisals associated with their partners' sexual desire in the context of partnered men and women with children?

RQ6: Are individuals' positive communication, sexual rewards and costs, and/or positive partner appraisals associated with their partners' sexual desire discrepancies in the context of partnered men and women with children?

RQ7: Are individuals' positive communication, sexual rewards and costs, and/or positive partner appraisals associated with their partners' sexual satisfaction in the context of partnered men and women with children?

RQ8: Are individuals' positive communication, sexual rewards and costs, and/or positive partner appraisals associated with their partners' relationship satisfaction in the context of partnered men and women with children?

Methods

Procedure

The current study utilized social media (e.g., Facebook, Twitter), in addition to targeted recruiting techniques including posting on parent-specific pages and listservs. Recruitment also included a Public Service Announcement through a local radio station and displaying posters (see *Appendix L*) on a mid-sized university campus and in the surrounding community (e.g., cafes, Libraries). Recruitment began in February 2017 and ended in September 2017. Eligibility criteria included mixed sex couples with a relationship length of three years or more who were 18 years or older and living together. Participants were required to have at least one child 17 years of age or younger living in the home on a full-time basis and the female partner was required to be the biological mother. All participants were required to be currently residing in the United States (US) due to recent findings that the gap between happiness among parents and non-parents in the US is significantly wider happiness in comparison to other countries (Glass, 2016). Interested participants followed the survey link to an initial sign-in page and consent form. If a participant consented to participate, he or she created a username and password for the online database connected to the survey. When one partner in a couple completed the initial process, they were asked to provide their partners' email address and the partner was automatically sent an invitation to participate. This process connected each individual in a couple and assigned each couple a unique identification number. Participants could leave questions blank and/or discontinue the survey at any time. Participants completed demographic information, answered questions about their physical and mental health, and completed multiple measures of sexual and relationship well-being. Upon completion of the survey,

participants received a \$10 Amazon gift card. All study protocol were approved by the Institutional Review Board of the University of Kentucky.

Participants

The current study included 93 biological mothers of children living in the home and 93 male romantic partners (93 couples; 186 individuals). Most (85.5%) individuals were married and living together and the remaining (14.5%) were partnered and living together. The average age for women was 32.97 years old and the average age for men was 34.81 years old with a range of 21-50 years. Couples were in a relationship for an average length of 9.89 years ranging from 3-20 years. Most participants (91.4%) identified as heterosexual and others identified as bisexual (5.4%), pansexual (2.7%), and questioning (0.5%). The majority of the sample were White (88%) and college educated with 69.4% having a four-year college degree or graduate level degree. The majority of the sample identified as either Christian/Catholic (42%) or religiously unaffiliated (36.6%). Couples had an average of 1.8 children ranging from 1-4 and most women (78.5%) had last given birth six or fewer years ago (without any giving birth less than six weeks) from the time of participation in the study.

Measures

Sexual desire. The Sexual Desire Inventory (*SDI*; Spector, Carey, Steinburg, 1996) was utilized to measure sexual desire. This instrument consists of 14-items that measures dyadic sexual desire (*SDI-D*; desire to engage in sexual activity with a partner) and solitary sexual desire (*SDI-S*; desire to engage sexually with oneself) on a 9-point scale ranging from 0 to 8. The current study utilized the dyadic sexual desire subscale with items including “during the last month, how often would you have liked to

engage in sexual activity with a partner?” High scores indicated high levels of dyadic desire. See *Appendix A* for scale items. For the current study, the dyadic subscale internal consistency coefficient for men was 0.79 and 0.76 for women.

Sexual desire discrepancy. Desire discrepancy scores were measured by subtracting the SDI-D score of the male participants from the SDI-D score of their female partners. A score of zero indicated no desire discrepancies between partners within the couple, positive scores indicated that men’s sexual desire was higher than women’s and negative scores indicated that women’s scores were higher than men’s.

Sexual satisfaction. Sexual satisfaction was measured utilizing the Global Measure of Sexual Satisfaction (*GMSEX*; Lawrance & Byers, 1992). This instrument measures responses to the question “overall, how would you describe your sexual relationship with your partner?” Responses are all on a 7-point semantic differential including the following dimensions: bad/good, unpleasant/pleasant, negative/positive, unsatisfying/satisfying, worthless/valuable. High scores indicated high levels of sexual satisfaction. See *Appendix B* for scale items. For the current study, the internal consistency coefficient for this scale was 0.93 for men and 0.94 for women.

Relationship satisfaction. Relationship satisfaction was measured utilizing the Global Measure of Relationship Satisfaction (*GMREL*; Lawrance & Byers, 1995). This item measures responses to the question “In general, how would you describe your overall relationship with your partner?” Responses are on a 7-point semantic differential including the same dimensions as listed above for the *GMSEX* measure. High scores indicated high levels of relationship satisfaction. See *Appendix B* for scale items. For the

current study, the internal consistency coefficient for this scale was 0.93 for men and 0.94 for women.

Reward/costs of sexual relationship. The degree to which the sexual relationship is rewarding or costly was measured utilizing the Exchanges Questionnaire (Lawrance & Byers, 1995). The GMSEX, GMREL, and Exchanges Questionnaire are all included in the Interpersonal Exchange Model of Sexual Satisfaction Questionnaire (IEMSSQ) created by Lawrance and Byers (1995). The Exchanges Questionnaire measures the degree to which participants perceive their sexual relationship as rewarding or costly and the equality of reward/costs between them and their partner. The scale includes six items total measuring 1) rewards of the sexual relationship (REW), 2) costs of the sexual relationship (CST), 3) rewards relative to one's expectations (CLrew), 4) costs relative to one's expectations (CLcst), and the perceived 5) equality of rewards (EQrew) and 6) equality of costs (EQcst) between oneself and one's partner. Responses are on a 9-point scale ranging from "not at all rewarding [costly]" to "extremely rewarding [costly]", "much less rewarding [costly] in comparison" to "much more rewarding [costly] in comparison", and "my rewards [costs] are much higher" to "my rewards [costs] are much higher." The difference between one's rewards and costs or relative rewards and costs was calculated by subtracting REW – CST and CLrew – CLcst. See *Appendix C* for scale items. The current study utilized REW-CST, CLrew-CLst, EQrew, and EQcst as four separate variables, as Lawrance and Byers (1995) did in their original manuscript describing the Exchanges Questionnaire.

Positive communication. Previous research has measured positive communication by observing couples interacting and researchers identifying the

following interactions in a laboratory setting: 1) exchange of compliments, 2) positive disclosure, 3) expressing fondness, and 4) displaying affection (Sanford, 2006; Shapiro et al., 2000). The following four questions were created based on this previous research on positive communication: “To what degree does your partner provide you with compliments?” “To what degree does your partner provide you with affection (physical or emotional)?” “To what degree does your partner express fondness toward you?” and “How likely is your partner to share his/her feelings, thoughts, opinions, or desires with you in a positive manner?” Responses were rated on a 7-point scale ranging from 1 = “not at all” or “very unlikely” to 7 = “very much” or “very likely.” The sum of the four items listed above was taken to create the measure for positive communication. High scores on this scale indicated high levels of positive communication. For the current study, the internal consistency coefficient for this scale was 0.86 for men and 0.88 for women.

Partner appraisals. Partner appraisals were measured utilizing the Interpersonal Qualities Scale (*IQS*; Murray et al., 1996). This scale assesses appraisals of positive and negative interpersonal attributes including “open and disclosing,” “responsive to my needs,” “understanding,” “patient,” “distant and complaining,” and “critical and judgmental.” Participants will rate their partner on each of the 23 attribute items on a 9-point scale ranging from 1 = “not at all characteristic” to 9 = “completely characteristic” (Murray et al., 1996). High scores on this scale are indicative of a positive appraisal of one’s partner and low scores indicate negative appraisals of one’s partner. See *Appendix F* for scale items. For the current study, the internal consistency coefficient for this scale was 0.88 for men and 0.86 for women.

Depression. Depression was measured utilizing the Beck Depression Inventory II (*BDI-II*; Beck, Steer, Ball, & Ranieri, 1996). This 21-item instrument measures severity of symptoms including sadness, loss of pleasure, irritability, and pessimism on a 4-point scale ranging from mild to severe. High scores on this scale indicate high levels of depressive symptomology. See *Appendix D* for items. For the current study, the internal consistency coefficient was 0.89 for men and 0.91 for women.

Self-esteem. Self-esteem was measured utilizing a 10-item global Self-Esteem Scale (*SES*; Rosenberg, 1965). This measurement requires participants to answer questions such as “I feel that I am a person of worth, at least on an equal basis with others” utilizing a 7-point scale ranging from 1 = “strongly disagree” to 7 = “strongly agree”. High scores on this scale indicate high levels of self-esteem. See *Appendix G* for items. For the current study, the internal consistency coefficient for this scale was 0.87 for men and 0.87 for women.

Data Analysis

Bivariate correlations were conducted to assess significant correlations between positive communication, positive appraisals, REW-CST, CLrew-CLcst, EQrew, EQcst, and sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction. In addition, bivariate correlations with variables that may impact sexual and relational outcomes were conducted (e.g., age, relationship length, time since last birth, and number of children, depression, and self-esteem) in order to control for significant contextual variables at the multivariate level.

A series of multiple linear regression models were conducted among men and women separately to assess what variables predicted sexual desire, desire

discrepancies, sexual satisfaction, and relationship satisfaction among parents individually after controlling for relevant contextual factors. Finally, a structural equation model was conducted in which individuals were nested within the couple with positive communication, partner appraisals, REW-CST, CLrew-CLcst, EQrew, and EQcst predicting sexual desire, desire discrepancies, sexual satisfaction and relationship satisfaction to examine partner-level impact.

Results

Bivariate Results

First, due to sexual satisfaction and relationship satisfaction failing to meet the assumption of normal distribution in the current sample, non-parametric tests were conducted at the bivariate level. Spearman's Rho bivariate correlations were conducted by splitting the current sample by gender due to the interconnectivity of partners within a couple (Kenny & Cook, 1999; Kenny et al., 2006). Correlations were assessed between the positive communication, positive partner appraisals, REW-CST, CLrew-CLcst, EQrew, and EQcst, and sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction. In addition, correlations were examined between variables of interest and possible confounding variables including depression, self-esteem, relationship length, and number of children.

For women, dyadic desire was correlated with CLrew-CLcst ($r_s = .31, p = .003$) and depression ($r_s = .28, p = .01$). Sexual satisfaction for women was correlated with REW-CST ($r_s = .63, p < .001$), CLrew-CLcst ($r_s = .49, p < .001$), partner appraisal ($r_s = .57, p < .001$), positive communication ($r_s = .59, p < .001$), and depression ($r_s = -.34, p < .001$). Relationship satisfaction for women was correlated with REW-CST ($r_s = .56, p <$

.001), CLrew-CLcst ($r_s = .44, p < .001$), partner appraisal ($r_s = .73, p < .001$), positive communication ($r_s = .68, p < .001$), self-esteem ($r_s = -.22, p = .03$), and depression ($r_s = -.26, p = .01$).

For men, relationship satisfaction was correlated with REW-CST ($r_s = .43, p < .001$), CLrew-CLcst ($r_s = .42, p < .001$), partner appraisal ($r_s = .56, p < .001$), positive communication ($r_s = .53, p < .001$), self-esteem ($r_s = -.21, p = .05$) and depression ($r_s = -.33, p = .002$). Sexual satisfaction was correlated with REW-CST ($r_s = .56, p < .001$), CLrew-CLcst ($r_s = .49, p < .001$), partner appraisal ($r_s = .41, p < .001$), positive communication ($r_s = .56, p < .001$), self-esteem ($r_s = -.22, p = .04$) and depression ($r_s = -.27, p = .01$). Dyadic desire and desire discrepancy were not correlated with any of the variables of interest in the current study for men.

Multivariate Results

A series of multiple linear regression analyses were conducted (two for men and three for women) to examine predictors of sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction among men and women separately. For women, to predict dyadic desire, depression was placed into the first block and CLrew-CLcst was placed into the second block. The model was significant for predicting dyadic desire $Adjusted R^2 = .17, F(2, 84) = 10.07, p < .01$ such that lower depression scores ($\beta = -.27, t = -2.62, p < .01$) and higher CLrew-CLcst scores ($\beta = .29, t = 2.81, p < .01$) predicted higher levels of dyadic desire. The model made up 17% of the variance in dyadic desire for women. For women's sexual satisfaction, depression was placed into the first block followed by positive communication, partner appraisal, REW-CST and CLrew-CLcst. The model was significant $Adjusted R^2 = .49, F(5, 80) = 17.51, p < .001$

such that higher positive communication scores ($\beta = .22, t = 2.11, p < .05$) and higher REW-CST scores ($\beta = .35, t = 3.32, p = .001$) predicted higher levels of sexual satisfaction. The model made up 49% of the variance in women's sexual satisfaction. For women's relationship satisfaction, depression and self-esteem were placed into the first block followed by positive communication, partner appraisal, REW-CST, and CLrew-CLcst in the second block to predict relationship satisfaction. The model was significant for predicting relationship satisfaction $Adjusted R^2 = .57, F(4, 79) = 20.07, p < .001$ such that higher positive communication scores ($\beta = .33, t = 3.37, p < .001$), more positive partner appraisals ($\beta = .31, t = 3.25, p < .01$), higher REW-CST scores ($\beta = .19, t = 1.96, p < .05$), and higher CLrew-CLcost scores ($\beta = .19, t = 2.07, p < .05$), predicted higher levels of relationship satisfaction. The model made up 57% of the variance in relationship satisfaction for women. See *Table 2* for predictive values for women's sexual and relational outcomes.

For men, to predict sexual satisfaction, depression and self-esteem were placed into the first block of the model followed by positive communication, partner appraisal, REW-CST and CLrew-CLcst in the second block. The model significantly predicted sexual satisfaction $Adjusted R^2 = .45, F(6, 75) = 12.10, p < .001$ such that higher positive communication scores ($\beta = .37, t = 3.89, p < .001$), and higher REW-CST scores ($\beta = .37, t = 3.15, p < .01$), predicted higher levels of sexual satisfaction. The model accounted for 45% of the variance in men's sexual satisfaction. For men's relationship satisfaction, depression was placed into the first block, followed by positive communication, partner appraisal, REW-CST, and CLrew-CLcst in the second block. The model significantly predicted relationship satisfaction $Adjusted R^2 = .48, F(5, 78) =$

16.20, $p < .001$ with higher positive communication scores ($\beta = .38$, $t = 4.16$, $p < .001$), and more positive partner appraisals ($\beta = .32$, $t = 3.27$, $p < .01$), predicting higher levels of relationship satisfaction. The model accounted for 48% of the variance in men's relationship satisfaction. Dyadic desire and desire discrepancies were not included in a predictive model for men due to the lack of significant bivariate correlations. See *Table 3* for regression coefficients for men.

Structural Equation Modeling Results

Structural equation modeling (SEM) was utilized to determine actor and partner effects of positive communication, partner appraisals, REW-CST, CLrew-CLcst and EQrew on sexual desire, sexual satisfaction, and relationship satisfaction among couples. SEM was conducted using the Actor-Partner Interdependence Model (APIM; Kenny & Cook, 1999; Kenny et al., 2006) in which men and women were nested within the couple and actor and partner effects were analyzed. Estimates were unstandardized to allow for comparisons across dyads (Kenny et al., 2006). Chi Square, Root Mean Square Error of Approximation (RMSEA), and Comparative Fit Index (CFI) were used to determine model fitness (Byrne, 2010).

Positive Communication. In the first model, positive communication was placed in the model to predict sexual satisfaction after controlling for depression and self-esteem. Model 1 demonstrated strong model fitness: $\chi^2(4) = 5.89$, $p = .21$, CFI = .99, RMSEA = .07. Actor effects were found for men ($B = .69$, $p < .001$) and women ($B = .58$, $p < .001$) and partner effects were found for men's positive communication scores predicting women's sexual satisfaction ($B = .57$, $p < .001$) and women's positive communication scores predicting men's sexual satisfaction ($B = .24$, $p < .05$). These

findings indicated that when men and women perceive their partners as engaging in high levels of positive communication, they have higher levels of sexual satisfaction, as do their partners. See *Figure 1* for the APIM with positive communication predicting sexual satisfaction.

In the second model, positive communication was included to predict relationship satisfaction after controlling for depression and self-esteem. Model 2 also demonstrated strong model fitness: $\chi^2(4) = 5.08, p = .28, CFI = 1.00, RMSEA = .05$. Actor effects were found for men ($B = .63, p < .001$) and women ($B = .63, p < .001$). Partner effects were found for women's positive communication scores predicting men's relationship satisfaction ($B = .44, p < .001$) and for men's positive communication scores predicting women's relationship satisfaction ($B = .35, p < .001$). These findings indicate that when men and women perceive their partners to engage in high levels of positive communication, they have higher levels of relationship satisfaction, as do their partners. See *figure 2* for the APIM with positive communication predicting relationship satisfaction.

Rewards and Costs (REW-CST). In the third model, REW-CST was used as the predictor of sexual satisfaction after controlling for depression and self-esteem. Model three did not demonstrate strong model fitness: $\chi^2(4) = 13.24, p = .01, CFI = .95, RMSEA = .16$. In the fourth model, REW-CST was used as the predictor of relationship satisfaction after controlling for depression and self-esteem. Model four did not demonstrate strong model fitness: $\chi^2(4) = 16.79, p = .002, CFI = .93, RMSEA = .19$.

Relative Rewards and Costs (CLrew-CLcst). In the next two models, CLrew-CLcst was included to predict dyadic desire (controlling for depression) and then

relationship satisfaction (controlling for depression). The model predicting dyadic desire demonstrated strong model fitness: $\chi^2(2) = .26, p = .88, CFI = 1.00, RMSEA = .00$. Actor effects were found for women's dyadic desire ($B = 1.58, p < .01$), though not for men's dyadic desire. No partner effects were found. Therefore, when women's actual sexual rewards match or exceed their expectations (relative rewards) and their sexual costs match or fall behind what was expected (relative costs), they have higher levels of dyadic desire. See *Figure 4* the APIM with CLrew-CLcst predicting dyadic desire.

The model predicting relationship satisfaction also demonstrated strong model fitness: $\chi^2(2) = 2.61, p = .27, CFI = .99, RMSEA = .06$. Actor effects were found for men ($B = .77, p < .01$) and women ($B = 1.22, p < .001$). Partner effects were found for women's CLrew-CLcst predicting men's relationship satisfaction ($B = .85, p < .01$) and for men's CLrew-CLcst predicting women's relationship satisfaction ($B = .55, p = .05$). These results indicate that when men and women have higher relative sexual rewards than costs, they have higher levels of relationship satisfaction as do their partners. See *Figure 5* for the APIM with CLrew-CLcst predicting relationship satisfaction.

Partner Appraisal. In the next model, partner appraisal was included to predict relationship satisfaction after controlling for depression and self-esteem. Model 9 demonstrated strong model fitness: $\chi^2(4) = .3.93, p = .42, CFI = 1.00, RMSEA = .00$. Actor effects were found for men ($B = .12, p < .001$) and women ($B = .14, p < .001$) and partner effects were found for men's partner appraisal predicting women's relationship satisfaction ($B = .06, p < .05$) and for women's partner appraisals predicting men's relationship satisfaction ($B = .05, p < .05$). See *Figure 6* for Model 9 results.

Discussion

Findings from the current study provide new information about the impact of positive communication, partner appraisals, and sexual rewards and costs on sexual desire, sexual satisfaction, and relationship satisfaction among mothers and their romantic partners in the US. This work extends previous research in the area of parents' sexual and romantic relationships by focusing on the impact of positive skills, interpersonal appraisals, and perspectives of the sexual relationship on desire and satisfaction among couples in the US that have children living in the home on a full-time basis.

Previous work examined couples transitioning into parenthood (e.g., Ahlorg et al., 2005), impact of number of children and pregnancy status (e.g., Witting et al. 2008), or impact of parent status (e.g., Lawrance & Byers, 1995) on sexual and relational outcomes in a variety of countries (e.g., Canada, Finland, Sweden). While important contributions to the research on parents' sexuality and relationship health, this body of literature may not capture the environmental components of maintaining a romantic partnership in the presence of children living in the home on a full-time basis in the US. Furthermore, previous work may not consider these situational and interpersonal components of parenting beyond seeing parent status as a predictor variable. Due to recent research indicating that the gap in happiness between parents and non-parents in the US is significantly wider in comparison to parents in other countries and this gap is fully explained by social policies affecting parents (Glass, 2016), capturing the variables that might improve or maintain sexual and relational health among mothers and their romantic partners in the US is an important contribution of the current study.

Sexual Desire

First, the current study findings indicate that when women's actual sexual rewards exceed their expected sexual rewards (relative rewards) and their actual sexual costs were less than their expected sexual costs (relative costs; CLrew-CLcst), they have higher levels of dyadic desire. This measure refers to the difference between actual versus expected sexual rewards and costs in their relationships (Lawrance & Byers, 1995). This is consistent with Basson's model of female sexual response indicating that sexual rewards and perceptions about those rewards impact the sexual response cycle for women by promoting or impeding willingness to engage in sexual activity (Basson, 2000). These findings are also consistent with qualitative reports indicating that when discussing reasons for decreased levels of sexual desire, women report their partnered sexual activity as "work" that becomes "mechanical" and likely more depleting than they expected it to be (Sims & Meana, 2010). Coupled with the current findings, perhaps individuals in satisfied long-term relationships value exchanges of sexual pleasure between partners (Hinchclif & Gott, 2004). Therefore, if mutual pleasure exists within the sexual relationship, a woman may experience less relative costs and more relative rewards and will likely have higher levels of sexual response in future sexual experiences (Basson, 2003).

The current findings also indicate that positive communication, partner appraisal, and the components of the Exchange model (EQrew, EQcst, CLrew-CLcst, and REW-CST) do not predict men's sexual desire. This may be due to men desiring sexual activity for physical reasons more so than interpersonal or intimacy-related reasons, which have been endorsed more by women (Mark, Herbenick, Fortenberry, Sanders, & Reece, 2014). These findings indicate a need to understand the interpersonal skills that

may impact sexual desire among men who are parents. Future research may benefit from focusing more on the physically pleasurable aspects of sexual skills among men.

Desire Discrepancies

Comparable to the results for desire, the second finding for the current study indicates that when women's relative rewards are higher than their relative costs in the sexual relationship, the desire discrepancy scores between partners are lower than when women's relative rewards are not higher than their relative costs. These results are likely due to women's lower dyadic desire when they perceive their relative sexual costs to be higher than their relative sexual rewards and therefore, they may not be as interested in engaging in sexual activity with that partner. This lack of interest would likely lead to larger gaps in dyadic desire between partners. In a study conducted by Mark (2014), desire discrepancy scores between partners from day to day predicted the quality of the sexual experience that day for women (not men). Therefore, if the quality of the sexual experience was low for women, there were higher levels of desire discrepancy between partners. Perhaps the quality of the sexual experience for women is related to this measure of expectations of sexual costs/reward versus actual sexual costs/rewards by addressing actual sexual experiences in comparison to expectations of those sexual experiences. However, more research is needed to understand the ways in which sexual rewards/costs and expectations of such rewards/costs impact the quality of women's sexual experiences.

Sexual Satisfaction

When predicting sexual satisfaction, the current study findings indicate that for men and women, higher levels of sexual satisfaction are predicted by higher levels of

sexual rewards in comparison to sexual costs (REW-CST). The results indicate a significant relationship between sexual rewards versus costs and sexual satisfaction. These findings are consistent with previous work demonstrating that higher levels of sexual rewards predict sexual satisfaction among individuals in long-term partnerships (Lawrance & Byers, 1995). However, Lawrance and Byers (1995) noted in their study that the interaction between the perceived equality of sexual costs between partners and sexual satisfaction was stronger for parents than for non-parents; the current results do not support those findings.

Another important finding of the current study is that higher levels of positive communication are associated with higher levels of sexual satisfaction among men and women with full actor and partner effects. Therefore, when men and women within the couple perceive that their partner engages in positive communication with them, they have higher levels of sexual satisfaction as do their partners. These findings highlight the importance of all four aspects of positive communication (e.g., expressing fondness, positive disclosure, providing compliments, and expressing affection) on sexuality at the couple-level. In a longitudinal study following couples for six years, Shapiro and colleagues (2000) found that when fathers expressed fondness toward their romantic female partners, the couple's relationship satisfaction was maintained or improved over time. The current study provides additional information about fondness and other positive communication strategies and the connection with sexual satisfaction in addition to relationship satisfaction.

Interestingly, MacNeil and Byers (2005) reported that relationship satisfaction mediated the association between disclosure and sexual satisfaction for women.

However, unlike the current findings, MacNeil and Byers (2005) reported that only self-disclosure (not partner disclosure) was related to sexual satisfaction among couples in their sample. Alternatively, in the current study we measured participants' perceptions of their partners' disclosure (in addition to the other three positive communication strategies), finding significant predictive power for sexual satisfaction with actor and partner effects. The current findings indicate that for mothers and their romantic partners, perceptions of partners engaging in positive disclosure, expressing fondness and affection, and exchanging compliments enhance sexual satisfaction at the couple-level.

Relationship Satisfaction

Similarly, findings from the current study indicate that when individuals perceive their partner to engage in high levels of positive communication, they have significantly higher levels of relationship satisfaction, as do their partners. These findings support the well-established body of literature among couples that positive communicative interactions enhance satisfaction with the overall relationship (Doohan & Manusov, 2004; Shapiro et al., 2000). The current findings provide more insight into the strength of multiple types of positive interactions on relationship health. This is particularly applicable to parents given that they report communication issues (Ahlborg et al., 2008). Specifically, in a longitudinal study, Ahlborg and colleagues (2008) found that parents reported more misunderstandings four years after the birth of their first child in comparison to during the short-term postpartum period.

Engaging in positive communication may promote resilience among couples by improving relationship satisfaction and creating an "intimate environment" in which

partners can create unique communicative patterns (Doohan & Manusov, 2004). For example, Doohan and Manusov (2004) found that when partners exchange compliments, this interpersonal praise does not follow a specific pattern across couples; instead compliments are unique to the couple and specific partners. These unique relational environments are important for relationship health for both men and women (Doohan & Manusov, 2004) and seem to contribute to satisfaction specifically among couples with children.

In addition to positive communication, positive partner appraisals predict relationship satisfaction with full actor and partner effects for men and women in the current study. These findings are consistent with previous work on appraisals and satisfaction among long-term couples (Murray et al., 1996; Murray et al, 2011). Positive appraisals not only predict satisfaction for couples in general, but buffer against the decline in satisfaction over time (Murray et al., 2011). The current findings coupled with previous work indicate that for long-term couples, viewing one's partner in a positive light has significantly positive effects on the relationship over time.

In addition, when partners' relative sexual rewards (expected versus actual sexual rewards) are higher than their relative sexual costs (expected versus actual sexual costs; $CL_{rew} - CL_{cst}$), they have higher levels of relationship satisfaction (actor effects) as do their partners (partner effects). These findings suggest that comparisons of actual to expected rewards and costs in the sexual relationship may be more important than the actual rewards and costs alone. There may also be an interaction between expectations of romantic relationships and the relational skills partners have to follow through with their expectations (McNulty & Karney, 2004). For example, McNulty

and Karney (2004) found that when partners behave in positive ways toward each other, positive expectations protect against declines in relationship satisfaction over time. However, if one has positive expectations and a negative relational environment, relationship satisfaction declines over time (McNulty & Karney, 2004). The current study supports these findings, as CLrew-CLcst is a measure of one's expected sexual rewards and costs in comparison to their actual rewards and costs. Therefore, the more one's expectations are met and their relative rewards exceed their relative costs, the higher their overall relationship satisfaction. In addition, the partner effects indicate that when an individual's relative sexual rewards exceed their relative costs their partner's relationship satisfaction is also higher. These findings specify the importance of sexual rewards in comparison to expectations of those rewards in the context of long-term relationships. Given that mothers and their romantic partners may struggle to maintain their desired level of sexual activity and intimate connection (Risch et al.,2003), considering their levels of rewards in comparison to their expectations may be helpful for future research and clinical practices.

Clinical Implications

The four types of positive communication included in our measure (positive disclosure, expressing fondness, exchanging compliments, and expressing affection) may provide specific tools for clinicians to assess, teach, and evaluate in couples with children who are struggling with relationship well-being. Likewise, partner appraisals are another specific focal point that may be applicable in a clinical setting. For example, clinicians may provide guidance for parents to target and focus on attributes about one's

partner that are positive and to create a unique intimate environment by communicating those positive partner perspectives effectively.

In addition, women's sexual desire and functioning has been a clinical focal point for decades (Basson, 2000; 2003; Tiefer, 2002). To the extent that a new drug has been placed on the market to treat women's low sexual desire (Joffe et al., 2016). However, the current study findings indicate that even in the context of motherhood and long-term romantic relationships, sexual desire among women is predicted by contextual factors including a woman's expected versus actual sexual rewards and costs in their romantic relationships. Therefore, targeting women's actual experiences of sexual rewards/costs and comparing to their expectations of these rewards/costs may be an effective intervention strategy to promote higher levels of sexual desire.

Limitations and Future Research

The current study was limited to biological mothers in mixed sex relationships. Future research would benefit from including lesbian biological mothers and higher frequencies of bisexual or pansexual mothers to understand how positive communication, partner appraisals and sexual rewards and costs impact desire and satisfaction among a wider representation of mothers and their romantic partners. Furthermore, more research is needed to understand these constructs in a variety of family settings (e.g., dating relationships, part-time parenting situations) to further examine the strength of these skills and perspectives on sexual and relational outcomes. Additionally, longitudinal research is needed to investigate the utility of these interpersonal strengths and perceptions on desire, desire discrepancies and satisfaction among couples with children over time.

Another limitation of the current study was the limitations of the Beck Depression Inventory (BDI-II) in measuring depression among postpartum women (Beck & Gable, 2001). In the current study, the BDI-II was utilized as a measurement of depression to control for depression as a psychological confounding variable. However, there is evidence that the BDI-II does not capture significant symptomology for postpartum depression in 56% of women (Beck & Gable, 2001). Therefore, though not an outcome variable, this is a measurement limitation due to some women with children having infants in the current study.

Finally, the current study included data that were not completely normality distributed. Our data were skewed in terms of satisfaction with a relatively satisfied sample of couples participating. Though common in psychological sciences research to have non-normal data (Blanca, Arnau, Lopez-Montiel, Bono, & Bendayan, 2013), the current study incorporated parametric testing due to the limitations of other methodologies at the dyadic level. Though some researchers suggest that results of parametric testing assuming linear relationships are minimally impacted unless the distribution is extremely non-normal (Lumley, Diehr, Emerson, & Chen, 2002), this is a limitation of the current study. For the SEM results, due to missing data present in the current study, the SEM analyses did not benefit from the “asymptotically distribution free” indicator in AMOS 24 that supports data with non-normal properties. As previous researchers have indicated, utilizing non-normal data in SEM may result in conservative estimates of model fitness (Tomarken & Waller, 2005), there may be additional significant findings that were not captured in the current study. Future research may

benefit from including no missing data in their SEM analyses to benefit from utilizing this indicator.

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Table 6.1 *Bivariate correlations between variables of interest and contextual variables*

Variable	Men (N = 93)				Women (N = 93)			
	SDI-D	Discrepancy	GMSEX	GMREL	SDI-D	Discrepancy	GMSEX	GMREL
Positive Communication	-.05	-.20	.56**	.53**	.08	.03	.59**	.68**
Positive Partner Appraisal	-.08	-.03	.41**	.56**	-.01	-.02	.57**	.73**
IEMSS								
REW-CST	-.03	-.04	.56**	.43**	.09	-.08	.63**	.56**
CLrew-CLcst	-.05	-.05	.49**	.42**	.31**	-.15	.49**	.44**
EQrew	.04	-.14	-.02	.05	.07	.02	-.20	-.05
EQcst	-.16	-.05	.01	-.13	.07	-.07	.03	-.002
Depression	-.07	.06	-.27**	-.33**	-.28**	.22*	-.34**	-.26*
Self-Esteem	-.05	-.10	-.22*	-.21*	.06	.109	-.17	-.22*
Relationship Length	-.11	-.08	-.08	-.02	.15	-.16	-.05	-.09
Age	.00	-.06	-.07	-.09	.13	-.14	.05	-.09
# of Children	-.07	-.03	.07	-.07	-.03	-.06	-.07	-.09

*p < .05, **p < .01

Table 6.2 *Multivariate analyses predicting sexual and relational variables among women*

Variables	Women (N = 93)			
	<i>b</i>	SE	β	<i>R</i> ²
Predicting Dyadic Desire				.11
Model 1				
Depression	-.42	.13	-.34**	
Model 2				.17
Depression	-.33	.13	-.27**	
CLrew-CLcst	1.50	.53	.29**	
Predicting Sexual Satisfaction				.09
Model 1				
Depression	-.27	.09	-.32**	
Model 2				.49
Depression	-.13	.07	-.16	
Positive Communication	.34	.16	.23*	
Partner Appraisal	.05	.03	.18	
REW-CST	1.04	.34	.33**	
CLrew-CLcst	.48	.39	.13	
EQrew	-.42	.47	-.07	
Predicting Relationship Satisfaction				.04
Model 1				
Depression	-.12	.08	-.18	
Self-esteem	-.14	.14	-.12	
Model 2				.57
Depression	-.00	.06	-.00	
Self-esteem	-.03	.09	-.02	
Positive Communication	.40	.12	.33***	
Partner Appraisal	.08	.02	.33**	
REW-CST	.48	.25	.19*	
CLrew-CLcst	.59	.29	.19*	

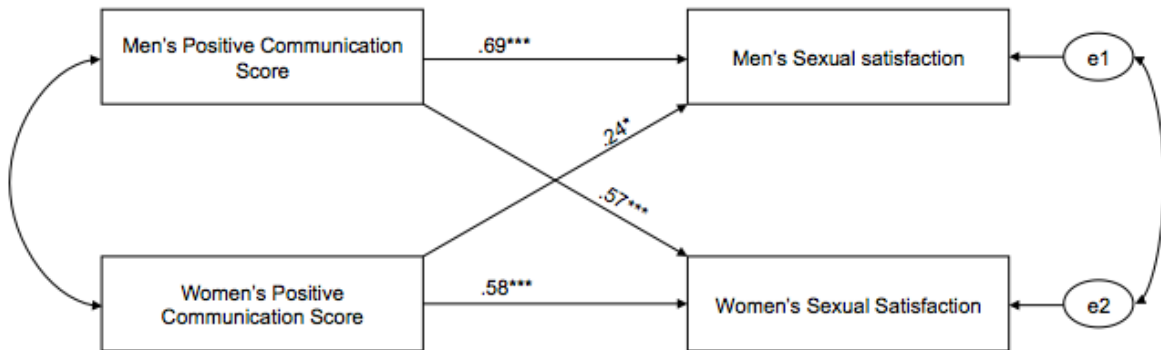
Note: *R*² = Adjusted *R*²; **p* < .05, ***p* < .01, ****p* < .001

Table 6.3 *Multivariate analyses predicting sexual and relational variables among men*

Variables	Men (N = 93)			
	<i>b</i>	SE	β	R^2
Predicting Sexual Satisfaction				.06
Model 1				
Depression	-.18	.12	-.20	
Self-esteem	-.17	.15	-.14	
Model 2				.45
Depression	-.13	.09	-.14	
Self-esteem	-.01	.12	-.00	
Positive Communication	.51	.13	.37***	
Partner Appraisal	-.00	.03	-.01	
REW-CST	1.06	.34	.37**	
CLrew-CLcst	.25	.37	.08	
Predicting Relationship Satisfaction				.09
Model 1				
Depression	-.26	.09	-.31**	
Model 2				.48
Depression	-.09	.07	-.11	
Positive Communication	.47	.11	.38***	
Partner Appraisal	.08	.03	.32**	
CLrew-CLcst	-.04	.32	-.01	
REW-CST	.40	.29	.16	

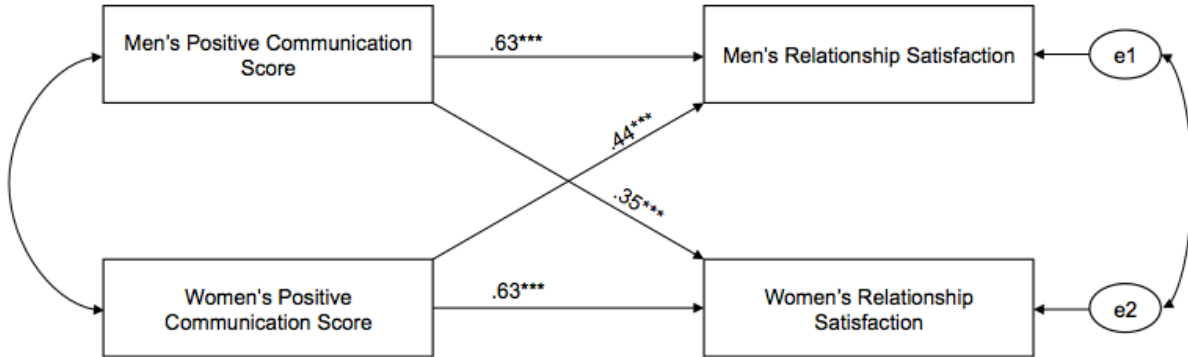
Note: R^2 = Adjusted R^2 ; * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 6.1. Actor and partner effects of positive communication predicting sexual satisfaction



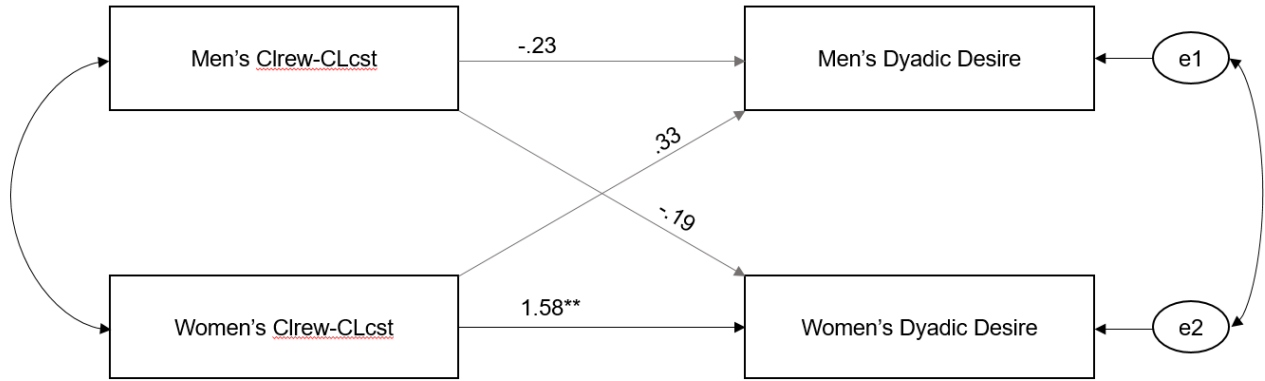
Note: Significant paths are in black and non-significant paths are in grey.
 * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 6.2. Actor and partner effects of positive communication predicting relationship satisfaction



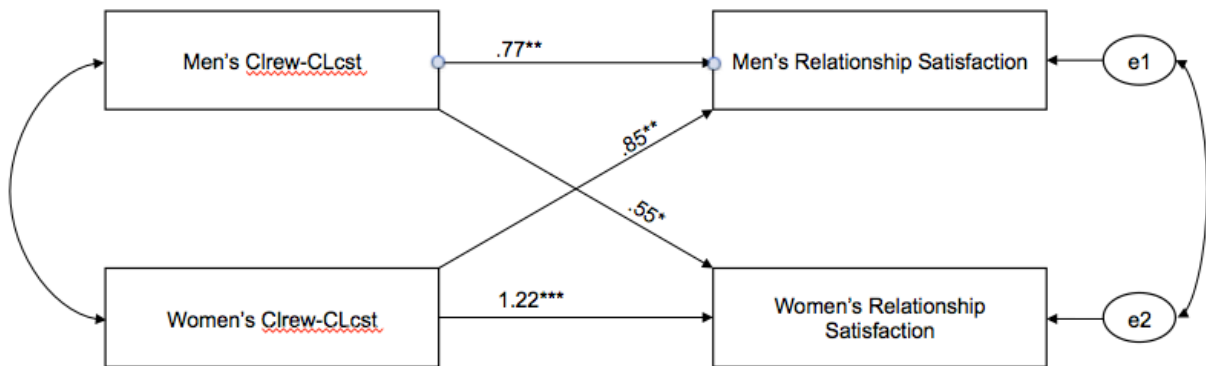
Note: Significant paths are in black and non-significant paths are in grey.
 * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 6.3. Actor and partner effects of CLrew-CLcst predicting dyadic desire



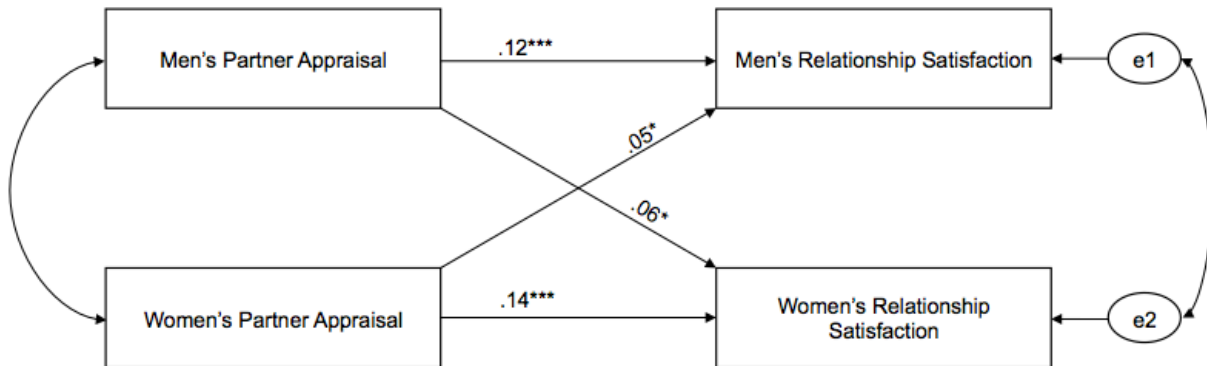
Note: Significant paths are in black and non-significant paths are in grey.
 *p < .05, **p < .01, ***p < .001.

Figure 6.4. Actor and partner effects of CLrew-CLcst predicting relationship satisfaction



Note: Significant paths are in black and non-significant paths are in grey.
 *p < .05, **p < .01, ***p < .001.

Figure 6.5. Actor and partner effects of partner appraisals predicting relationship satisfaction



Note: Significant paths are in black and non-significant paths are in grey.
* $p < .05$, ** $p < .01$, *** $p < .001$.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to 1) develop a useful tool to measure ATMSB, 2) to investigate the differences between ATMSB and the relationship between ATMSB and sexual desire, desire discrepancies, sexual satisfaction, and relationship satisfaction among couples with children and couples without children 3) to examine the impact of ACEs on sexual and relational outcomes among couples with children, and 4) to investigate the impact of positive communication, sexual rewards/costs, and partner appraisals on sexual and relational outcomes among couples with children. Collecting information about both partners in the couple contextualized outcomes for male and female partners by providing additional information about how men and women impact outcomes among one another. Additionally, by utilizing Basson's Model of Sexual Response (2000) and collecting information about a variety of types of risk and protective factors, the current study added insight into the ways in which individual and couple-level dynamics impact relationships among intact couples with children. This study also developed a preliminary measurement tool to provide other researchers who are interested in examining the risk and protective factors for relationship health among parents and couples that may be planning to have children in the future.

Summary of Results

Raising children in the home on a full-time basis while also maintaining a romantic relationship can be challenging for parents (Risch et al., 2003). Previous research indicates that women who are mothers report difficulty viewing themselves as sexual beings after transitioning to parenthood (Trice-Black,2010) and couples with

children struggle with their sexual lives (Risch et al., 2003). The current study findings provide evidence for a variety of risk and protective factors for sexual desire, desire discrepancies, sexual satisfaction, relationship satisfaction, sexual rewards and costs, and infidelity among couples with children.

Another important contribution of the current study outlined in the first manuscript was the development and validation of the Attitudes Towards Mothers as Sexual Beings (ATMSB) scale and subscales. This 17-item scale was developed using applicable literature, feedback provided by experts in the field of sexuality and an exploratory factor analysis. The next steps in this process are to conduct a confirmatory factor analysis in a different sample to strengthen the study findings and further validate the scale.

Nevertheless, the current study findings indicate that among couples with children, ATMSB scale and the Mothers' Sexual Functioning subscale scores among men were associated with dyadic sexual desire for their female partners. These findings indicate that when male partners with children believe mothers are sexual beings and have high levels of sexual functioning (e.g., fantasies, sexual interest/desire), their female partners have higher levels of dyadic sexual desire (desire for them).

Additionally, men's ATMSB were associated with sexual satisfaction for them and for their partners. Importantly, when men with children endorse beliefs about mothers' experiencing high levels of sexual pleasure and enjoyment, they have higher levels of sexual satisfaction as do their female partners. These beliefs about mothers' sexual pleasure were also significantly associated with higher levels of relationship satisfaction in the couple with full actor and partner effects. These findings were also true for couples without children. More positive attitudes towards mothers' sexual pleasure and

enjoyment among couples without children were linked to higher levels of relationship satisfaction for men and higher levels of sexual satisfaction for women without children. Therefore, in the context of couples with or without children, when partners believe mothers experience sexual pleasure, they are more satisfied in their romantic relationships. Additionally, there were important differences between men and women in couples with children and in couples without children in terms of ATMSB. For example, men and women with children had more positive attitudes about mothers sexuality and mothers' ability to be simultaneously good/effective/responsible mothers while also being sexy/sexual women.

In the second manuscript, findings indicated that the adversity adults experienced in childhood (ACEs) had a negative impact on the ways women viewed the equality of costs in their sexual relationships and the likelihood of men engaging in infidelity in the context of their current relationships. At the individual level, higher ACE scores significantly impacted the likelihood of engaging in infidelity for men and perceptions that women experience more sexual costs compared to their male partners. Men's higher ACE scores were also associated with their female partner perceiving that she has higher sexual costs in the relationship compared to her partner. Therefore, ACE score appears to be a risk factor for the equality of sexual costs in the relationship and infidelity, two indicators of less relationship stability over time (Amato & Previti, 2003; Byers & MacNeil, 2006).

Interpersonal factors that may impact sexual and relational health for parents in a positive way were also identified in the current study. As the third manuscript highlights, one of these factors is positive communication in the form of positive disclosure,

exchanging compliments, providing a partner with physical or emotional affection, and expressing fondness. Positive communication was associated with sexual and relationship satisfaction with full actor (actor positive communication was associated with higher actor relationship satisfaction) and partner effects (actor positive communication was associated with partner higher relationship satisfaction) for men and women with children. These findings indicate that when couples engage in these specific types of communication with one another, they are more satisfied with their relationships overall and specifically with their sex lives. For parents, learning these skills may provide a protective quality on satisfaction by promoting intimacy and connection (Shapiro et al., 2000). Additionally, positive partner appraisals or seeing your partner in a positive light were also associated with relationship satisfaction with full actor and partner effects (more positive appraisals were associated with higher relationship satisfaction) among couples with children. These results likely interact with one another such that when individuals view their partners in a positive way, they may be more likely to communicate with them in a positive way and visa versa.

Additionally, aspects of the sexual exchange model impacted dyadic desire, sexual satisfaction, desire discrepancies, and relationship satisfaction among couples with children. For example, when one's relative rewards (actual rewards compared with expected rewards) were higher than one's relative costs (actual costs compared with expected costs), they had higher levels of relationship satisfaction as did their partners. Further, this measure of relative rewards compared to relative costs in the sexual relationship was also associated with sexual desire for mothers. These findings indicate that considering expectations of the sexual relationship in addition to actual experiences

of the sexual relationship may offer a protective quality on desire and overall relationship health if those expectations are met or exceeded. Future research may benefit from comparing the impact of this measure of relative rewards versus relative costs on desire among women before and after they have transitioned into motherhood. Women report that their role as a mother impacts their sexual desire in a negative way (Sims & Meana, 2010; Trice-Black, 2010). Perhaps understanding mothers' actual sexual rewards and costs compared to the expectations of these rewards and costs before and after transitioning into motherhood may provide insight into the ways desire is impacted by motherhood.

As a whole, attitudes about mothers' sexual pleasure and enjoyment impact couples with and without children in similar ways, however there are also distinct differences between the impact of ATMSB and sexual and relational outcomes among couples with children compared to couples without children. Other individual factors including ACEs impact relationship health outcomes among couples with children and appear to be a risk factor for relationship health with possible effects across the lifespan. Additionally, interpersonal factors such as positive communication, partner appraisals, and the sexual exchange model influence sexual and relationship outcomes at the couple-level. These findings provide insight into the ways in which couples with children may be able to preserve their sexual and romantic relationships over time.

Strengths

The current study offers a variety of strengths to the existing literature on mothers' sexuality. By utilizing Basson's model of sexual response (2000) as a conceptual framework and the Actor-Partner Interdependence Model (Kashy & Kenny,

1999; Kenny et al., 2006) as an analytical framework, the current study provides new insight into the ways individual and couple-level risk and protective factors impact sexual and relational outcomes among couples with children through incorporating dyadic-level data collection and analysis. By collecting data from both partners in the couple, the current study offers relevant couple-level information about the ways in which mothers' romantic partners impact their sexual desire and other relationship outcomes. This important information would not have been captured through individual data collection and analyses. Basson's Model of Sexual Response (2000) highlights the interpersonal components of sexual response as forces that offer non-sexual rewards for engaging in sexual activity, provide incentive for engaging in future sexual activity and impact the processing of sexual stimuli when presented with an option to engage in sexual activity (Basson, 2000). Therefore, the interpersonal nature of sexuality impacts many points of the sexual response cycle for men and women (Basson, 2000).

In addition, the current study provides an important premise to continue researching sexuality among couples with children by providing a psychometrically sound tool that measures culturally-informed attitudes about mothers as sexual beings and offers new research on risk and protective factors for men and women and the couple as a unit. In addition, the current study incorporated couples exclusively living in the US. This is a strength given the differences associated with parents and non-parents in overall well-being in the US compared to other countries due to parent-related social policies (Glass, 2016) and the past research on this topic conducted in other countries outside of the US (e.g., Ahlorg et al., 2005; Lawrance & Byers, 1995; Witting et al. 2008) with different policies.

Limitations and Future Research

The current study also has a number of limitations. Conducting research with couples requires that both partners in the couple participate in the study. One limitation of couple-level data is that there may be discrepancies between partners in responses such as in the current study in which one partner in a couple stated they were married while another couple reported they were non-married and living together. Additionally, of the couples with children that were included, inclusion criteria were somewhat rigid in that the mother was required to be the biological mother of at least one child and the children were required to live in the home on a full-time basis. Therefore, due to the variety of alternative family situations that exist in the US (e.g., single parents, same-sex marriages with children, shared custody, foster care/adoptive parenting), this was a limitation of the current study. Future research may benefit from incorporating couples with children that include lesbian, bisexual, or pansexual mothers, single mothers, foster or adoptive parents, and shared custody family situations to capture a broader understanding of mothers and their sexuality.

Additionally, we did not ask a number of important questions that would have strengthened the current study. For example, the male partners were not asked if they were the biological father of the children. This would have been beneficial to know whether the male partner was also a biological parent in addition to the mother to acknowledge the experiences of biological fathers as well. It would have also been helpful to know if the non-parent couples were planning on having children to get an idea of their family planning goals. Future research may benefit from documenting whether or not both partners are the biological parents and including a comparison

group in which couples without children are planning to have children. This way, researchers can conduct longitudinal research to understand the impact of these risk and protective factors throughout the period in which couples transition to parenting and beyond.

Another important limitation of the current study was the utilization of the Beck Depression Inventory (BDI-II) as a measurement of depression. Though depression was incorporated as a possible psychological confounding variable, there is evidence that it does not capture post-partum depression among many women (Beck & Gable, 2001). One study found that it captured 56% of women who were experiencing postpartum depression (Beck & Gable, 2001). Therefore, though not an outcome variable, this is a measurement limitation due to some women with children having infants in the current study.

In addition, in the development of the ATMSB scale, the items were not distributed to a community sample to assess for clarity. Though many of the experts reviewing the items addressed this issue, by omitting this step, the scale items are at higher risk of reading as unclear to future participants. Additionally, though a strength of the ATMSB scale development is that it included attitudes of parents and non-parents to capture a broad array of attitudes regarding motherhood and sexuality, it was created and validated utilizing a sample of mixed sex couples (one man and one woman) from the US. Further validation in samples from other countries and more sexually diverse samples will strengthen the utility of the scale and subscales. The current research was also conducted utilizing a convenience sample of mostly White individuals. Future

research may benefit from incorporating a more racially diverse sample to further validate the ATMSB measurement tool and strengthen the findings of the current study.

Finally, the current study included data that were not completely normality distributed. This data were skewed with a relatively satisfied sample of couples participating. Though common in social and psychological sciences research to have non-normal data (Blanca, Arnau, Lopez-Montiel, Bono, & Bendayan, 2013), the current study incorporated parametric testing due to the limitations of other methodologies at the dyadic level. Though some researchers suggest that results of parametric testing assuming linear relationships are minimally impacted unless the distribution is extremely non-normal (Lumley, Diehr, Emerson, & Chen, 2002), this is a limitation of the current study. Considering SEM results of the current study, due to the presence of missing data, the SEM analyses did not benefit from the “asymptotically distribution free” indicator in AMOS 24 that supports data with non-normal properties. As previous researchers have indicated, utilizing non-normal data in SEM may result in conservative estimates of model fitness (Tomarken & Waller, 2005), therefore, there may be additional significant findings that were not captured in the current study. Future research may benefit from including no missing data in their SEM analyses to benefit from utilizing this indicator.

Implications for Clinicians and Health Promotion Professionals

This research is applicable in a variety of ways clinicians and health promotion practitioners working at the individual and interpersonal levels of health.

Clinical Application

Clinicians working with couples with children or that may consider having children in the future who present sexual or relational health concerns may benefit from assessing ACE scores and ATMSB to examine the possible impact of these individual-level risk/protective factors on relationship health. Clinicians may also take advantage of assessing and targeting individuals' expectations of the costs/rewards of the sexual relationship in comparison to the actual costs/rewards they are receiving in their current relationships. Understanding the role of the equality of these sexual costs and rewards between partners may also be an important area of focus for clinicians working with parents.

At the interpersonal level of health, clinical professionals may benefit from utilizing the four positive communication strategies and partner appraisals identified in the current study as skills they can teach romantic partners in a psychoeducational setting and track utilization in a counseling/therapy setting when working with couples with children.

Application for Health Promotion Professionals

Beyond the scope of clinical work, the current research is also applicable to health promotion practitioners. The findings indicating that ACEs impact constructs (infidelity and equality of sexual costs) that have been negatively associated with relationship stability demonstrate a need for health promotion practitioners to incorporate ACE assessment into program planning among couples with children. For example, if adult ACE scores were routinely assessed in a primary health care setting, health care professionals could work with parents to build relational resilience between the patients with high ACE scores and their partners and children. In addition, health

promotion practitioners may benefit from targeting programming at the family-level of health to decrease the amount of ACEs passed on from parents to children.

One successful health promotion program is the Kentucky HANDS (Health Access Nurturing Development Services) program (Williams, Asaolu, Robl, English, Smith, Jewell, 2014). The HANDS program provides regular home visitation to pregnant and postpartum women in “at risk” families in the state of Kentucky (Williams et al., 2014). A program tailored specifically to address relationship difficulties among parents or couples considering parenthood could provide maternal mental health counseling and intervention strategies focused on interpersonal skills and resilience building among romantic partners in addition to parent-child relationships. A program such as this would teach family members about the severity of ACEs on overall health for parents and children in addition to providing psycho-education about positive communication strategies and weekly couples counseling sessions or check-ins to create a space for parents to share their relational concerns.

The current research has broader implications for health promotion practitioners because it provides support for targeting the interpersonal level of health instead of individual-level health behavior change. Therefore, when working on issues related to relationship health, it may be necessary to create intervention strategies that incorporate all individuals in the relationship to promote optimal health and well-being.

Conclusions

Parents in the US struggle to maintain their level of overall life satisfaction in comparison to non-parents. The gap in happiness between parents and non-parents in the US is much larger in comparison to other countries and is entirely due to national

policies that negatively impact parents, creating more stress and burden on the nuclear family (Glass, 2016). Therefore, understanding the risk and protective factors that impact sexual and relational well-being among couples with children in the US is an important area of research with clinical and health promotion applications. The difficulties these policies place on parents leaves little time or energy for couples to maintain or enhance their romantic relationships. Given that the policies impacting parents in the US may be more difficult to target, understanding how health promotion practitioners can improve relational outcomes for couples with children at the individual and interpersonal levels may be more realistic. The current study offers a variety of risk and protective factors for maintaining sexual desire and other sexual and relational health outcomes for couples with children that can be applied in a clinical and health promotion programming setting. Practitioners designing interventions may benefit from targeting the interpersonal level of health and focusing on relationship skills, interactions, and perceptions among romantic partners.

Appendix A: Sexual Desire Inventory

Sexual Desire Inventory (SDI; Spector, Carey, Steinburg, 1996)

This questionnaire asks about your level of sexual desire. By desire, we mean *interest in or wish for sexual activity*. For each item, please select the item that best shows your thoughts feelings. Your answers will be private and anonymous.

1. During the last two months, *how often* would you *have liked* to engage in sexual activity with a partner (for example, touching each other's genitals, giving or receiving oral stimulation, intercourse, etc.)?

- 0) Not at all
- 1) Once a month
- 2) Once every two weeks
- 3) Once a week
- 4) Twice a week
- 5) 3 to 4 times a week
- 6) Once a day
- 7) More than once a day

2. During the last two months, *how often* have you had sexual thoughts involving a partner?

- 0) Not at all
- 1) Once or twice a month
- 2) Once a week
- 3) Twice a week
- 4) 3 to 4 times a week
- 5) Once a day
- 6) A couple of times a day
- 7) Many times a day

	No Desire								Strong Desire
3. When you have sexual thoughts, <i>how strong</i> is your desire to engage in sexual behavior with a partner?	0	1	2	3	4	5	6	7	8
4. When you first see an attractive person, <i>how strong</i> is your sexual desire?	0	1	2	3	4	5	6	7	8
5. When you spend time with an attractive person (for example, at work or school), <i>how strong</i> is your sexual desire?	0	1	2	3	4	5	6	7	8
6. When you are in romantic situations (such as candle-lit	0	1	2	3	4	5	6	7	8

dinner, a walk on the beach, etc.), *how strong* is your sexual desire?

7. *How strong* is your desire to engage in sexual activity with a partner? 0 1 2 3 4 5 6 7 8

8. *How important* is it for you to fulfill your sexual desire through activity with a partner? Not at all Important Extremely Important

0 1 2 3 4 5 6 7 8

9. Compared to other people of your age and sex, how would you rate your desire to behave sexually with a partner?

Much less Desire Much more Desire

0 1 2 3 4 5 6 7 8

10. During the last two months, *how often* would you *have liked* to behave sexually by yourself (for example, masturbating, touching your genitals etc.)?

- 0) Not at all
- 1) Once a month
- 2) Once every two weeks
- 3) Once a week
- 4) Twice a week
- 5) 3 to 4 times a week
- 6) Once a day
- 7) More than once a day

11. *How strong* is your desire to engage in sexual behavior by yourself?

No Desire Strong Desire

0 1 2 3 4 5 6 7 8

12. *How important* is it for you to fulfill your desires to behave sexually by yourself?

Not at all Important Extremely Important

0 1 2 3 4 5 6 7 8

13. Compared to other people of your age and sex, how would you rate your desire to behave sexually by yourself?

Much less Desire Much more Desire

0 1 2 3 4 5 6 7 8

14. *How long* could you go comfortably without having sexual activity of some kind?

- 0) Forever
- 1) A year or two
- 2) Several months
- 3) A month
- 4) A few weeks
- 5) A week
- 6) A few days
- 7) One day
- 8) Less than one day

Appendix B: General Measure of Sexual and Relationship Satisfaction Scales

Sexual Satisfaction (General Measure of Sexual Satisfaction (GMSEX))

Overall, how would you describe your sexual relationship with your partner?

Very Bad	1	2	3	4	5	6	7	8	9	Very Good
Very Unpleasant	1	2	3	4	5	6	7	8	9	Very Pleasant
Very Negative	1	2	3	4	5	6	7	8	9	Very Positive
Very Unsatisfying	1	2	3	4	5	6	7	8	9	Very Satisfying
Worthless	1	2	3	4	5	6	7	8	9	Very Valuable

Relationship Satisfaction (General Measure of Relationship Satisfaction (GMREL))

Overall, how would you describe your *overall* relationship with your partner?

Very Bad	1	2	3	4	5	6	7	8	9	Very Good
Very Unpleasant	1	2	3	4	5	6	7	8	9	Very Pleasant
Very Negative	1	2	3	4	5	6	7	8	9	Very Positive
Very Unsatisfying	1	2	3	4	5	6	7	8	9	Very Satisfying
Worthless	1	2	3	4	5	6	7	8	9	Very Valuable

6. How does the level of costs that you incur in your sexual relationship with your partner compare to the level of costs that your partner gets from the relationship?

1	2	3	4	5	6	7	
My Costs Are Much Higher						Partners' Costs Are Much Higher	

Appendix D: Beck Depression Inventory-II
(Beck et al., 1996)



**Beck Depression
Inventory**

Baseline

V 0477

CRTN: _____ CRF number: _____

Page 14

patient inits: _____



Name: _____ Marital Status: _____ Age: _____ Sex: _____

Occupation: _____ Education: _____

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

<p>1. Sadness</p> <p>0 I do not feel sad.</p> <p>1 I feel sad much of the time.</p> <p>2 I am sad all the time.</p> <p>3 I am so sad or unhappy that I can't stand it.</p> <p>2. Pessimism</p> <p>0 I am not discouraged about my future.</p> <p>1 I feel more discouraged about my future than I used to be.</p> <p>2 I do not expect things to work out for me.</p> <p>3 I feel my future is hopeless and will only get worse.</p> <p>3. Past Failure</p> <p>0 I do not feel like a failure.</p> <p>1 I have failed more than I should have.</p> <p>2 As I look back, I see a lot of failures.</p> <p>3 I feel I am a total failure as a person.</p> <p>4. Loss of Pleasure</p> <p>0 I get as much pleasure as I ever did from the things I enjoy.</p> <p>1 I don't enjoy things as much as I used to.</p> <p>2 I get very little pleasure from the things I used to enjoy.</p> <p>3 I can't get any pleasure from the things I used to enjoy.</p> <p>5. Guilty Feelings</p> <p>0 I don't feel particularly guilty.</p> <p>1 I feel guilty over many things I have done or should have done.</p> <p>2 I feel quite guilty most of the time.</p> <p>3 I feel guilty all of the time.</p>	<p>6. Punishment Feelings</p> <p>0 I don't feel I am being punished.</p> <p>1 I feel I may be punished.</p> <p>2 I expect to be punished.</p> <p>3 I feel I am being punished.</p> <p>7. Self-Dislike</p> <p>0 I feel the same about myself as ever.</p> <p>1 I have lost confidence in myself.</p> <p>2 I am disappointed in myself.</p> <p>3 I dislike myself.</p> <p>8. Self-Criticalness</p> <p>0 I don't criticize or blame myself more than usual.</p> <p>1 I am more critical of myself than I used to be.</p> <p>2 I criticize myself for all of my faults.</p> <p>3 I blame myself for everything bad that happens.</p> <p>9. Suicidal Thoughts or Wishes</p> <p>0 I don't have any thoughts of killing myself.</p> <p>1 I have thoughts of killing myself, but I would not carry them out.</p> <p>2 I would like to kill myself.</p> <p>3 I would kill myself if I had the chance.</p> <p>10. Crying</p> <p>0 I don't cry anymore than I used to.</p> <p>1 I cry more than I used to.</p> <p>2 I cry over every little thing.</p> <p>3 I feel like crying, but I can't.</p>
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<p>11. Agitation</p> <p>0 I am no more restless or wound up than usual.</p> <p>1 I feel more restless or wound up than usual.</p> <p>2 I am so restless or agitated that it's hard to stay still.</p> <p>3 I am so restless or agitated that I have to keep moving or doing something.</p> <p>12. Loss of Interest</p> <p>0 I have not lost interest in other people or activities.</p> <p>1 I am less interested in other people or things than before.</p> <p>2 I have lost most of my interest in other people or things.</p> <p>3 It's hard to get interested in anything.</p> <p>13. Indecisiveness</p> <p>0 I make decisions about as well as ever.</p> <p>1 I find it more difficult to make decisions than usual.</p> <p>2 I have much greater difficulty in making decisions than I used to.</p> <p>3 I have trouble making any decisions.</p> <p>14. Worthlessness</p> <p>0 I do not feel I am worthless.</p> <p>1 I don't consider myself as worthwhile and useful as I used to.</p> <p>2 I feel more worthless as compared to other people.</p> <p>3 I feel utterly worthless.</p> <p>15. Loss of Energy</p> <p>0 I have as much energy as ever.</p> <p>1 I have less energy than I used to have.</p> <p>2 I don't have enough energy to do very much.</p> <p>3 I don't have enough energy to do anything.</p> <p>16. Changes in Sleeping Pattern</p> <p>0 I have not experienced any change in my sleeping pattern.</p> <hr/> <p>1a I sleep somewhat more than usual.</p> <hr/> <p>1b I sleep somewhat less than usual.</p> <hr/> <p>2a I sleep a lot more than usual.</p> <hr/> <p>2b I sleep a lot less than usual.</p> <hr/> <p>3a I sleep most of the day.</p> <hr/> <p>3b I wake up 1-2 hours early and can't get back to sleep.</p>	<p>17. Irritability</p> <p>0 I am no more irritable than usual.</p> <p>1 I am more irritable than usual.</p> <p>2 I am much more irritable than usual.</p> <p>3 I am irritable all the time.</p> <p>18. Changes in Appetite</p> <p>0 I have not experienced any change in my appetite.</p> <hr/> <p>1a My appetite is somewhat less than usual.</p> <hr/> <p>1b My appetite is somewhat greater than usual.</p> <hr/> <p>2a My appetite is much less than before.</p> <hr/> <p>2b My appetite is much greater than usual.</p> <hr/> <p>3a I have no appetite at all.</p> <hr/> <p>3b I crave food all the time.</p> <p>19. Concentration Difficulty</p> <p>0 I can concentrate as well as ever.</p> <p>1 I can't concentrate as well as usual.</p> <p>2 It's hard to keep my mind on anything for very long.</p> <p>3 I find I can't concentrate on anything.</p> <p>20. Tiredness or Fatigue</p> <p>0 I am no more tired or fatigued than usual.</p> <p>1 I get more tired or fatigued more easily than usual.</p> <p>2 I am too tired or fatigued to do a lot of the things I used to do.</p> <p>3 I am too tired or fatigued to do most of the things I used to do.</p> <p>21. Loss of Interest in Sex</p> <p>0 I have not noticed any recent change in my interest in sex.</p> <p>1 I am less interested in sex than I used to be.</p> <p>2 I am much less interested in sex now.</p> <p>3 I have lost interest in sex completely.</p>
--	---

3 4 5 6 7 8 9 10 11 12 A B C D E

Subtotal Page 2

Subtotal Page 1

Total Score

NR15645

9. Emotional

Not at all 1 2 3 4 5 6 7 8 9 Completely
Characteristic

10. Moody

Not at all 1 2 3 4 5 6 7 8 9 Completely
Characteristic

11. Thoughtless

Not at all 1 2 3 4 5 6 7 8 9 Completely
Characteristic

12. Irrational

Not at all 1 2 3 4 5 6 7 8 9 Completely
Characteristic

13. Distant

Not at all 1 2 3 4 5 6 7 8 9 Completely
Characteristic

14. Complaining

Not at all 1 2 3 4 5 6 7 8 9 Completely
Characteristic

15. Childish

Not at all 1 2 3 4 5 6 7 8 9 Completely
Characteristic

16. Critical and judgmental

Not at all 1 2 3 4 5 6 7 8 9 Completely
Characteristic

Domain: Social Commodities

17. Self-assured

Not at all 1 2 3 4 5 6 7 8 9 Completely

Characteristic

Characteristic

18. Sociable

Not at all Characteristic	1	2	3	4	5	6	7	8	9	Completely Characteristic
------------------------------	---	---	---	---	---	---	---	---	---	------------------------------

19. Intelligent

Not at all Characteristic	1	2	3	4	5	6	7	8	9	Completely Characteristic
------------------------------	---	---	---	---	---	---	---	---	---	------------------------------

20. Witty

Not at all Characteristic	1	2	3	4	5	6	7	8	9	Completely Characteristic
------------------------------	---	---	---	---	---	---	---	---	---	------------------------------

21. Traditional

Not at all Characteristic	1	2	3	4	5	6	7	8	9	Completely Characteristic
------------------------------	---	---	---	---	---	---	---	---	---	------------------------------

Appendix G: Rosenberg Self-Esteem Scale

Rosenberg Self-Esteem Scale (RSE)

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. On the whole, I am satisfied with myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. At times I think I am no good at all.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I feel that I have a number of good qualities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I am able to do things as well as most other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I feel I do not have much to be proud of.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I certainly feel useless at times.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I feel that I'm a person of worth, at least on an equal plane with others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I wish I could have more respect for myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. All in all, I am inclined to feel that I am a failure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I take a positive attitude toward myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7) Sexy women who are mothers are more likely to be:

1	2	3	4	5	6	7
Very Ineffective Mothers						Very Effective Mothers

8) Sexual women who are mothers are more likely to be:

1	2	3	4	5	6	7
Very Bad Mothers						Very Good Mothers

9) Sexual women who are mothers are more likely to be:

1	2	3	4	5	6	7
Very Irresponsible Mothers						Very Responsible Mothers

10) Sexual women who are mothers are more likely to be:

1	2	3	4	5	6	7
Very Ineffective Mothers						Very Effective Mothers

11) For a woman who is a mother, nurturing her sex life contributes to her as a/an

1	2	3	4	5	6	7
Very Bad Mothers						Very Good Mothers

12) For a woman who is a mother, nurturing her sex life contributes to her as a/an

1	2	3	4	5	6	7
Very Irresponsible Mothers						Very Responsible Mothers

13) For a woman who is a mother, nurturing her sex life contributes to her as a/an

1	2	3	4	5	6	7
Very Ineffective Mothers						Very Effective Mothers

14) For women who are mothers, sexual activity is

1	2	3	4	5	6	7
Not At All						Extremely
Important						Important

15) Compared to women in general, sexual activity for women who are mothers is

1	2	3	4	5	6	7
Much Less						Much More
Important						Important

16) For women who are mothers, sexual expression is

1	2	3	4	5	6	7
Not At All						Extremely
Important						Important

17) Compared to women in general, sexual expression for women who are mothers is

1	2	3	4	5	6	7
Much Less						Much More
Important						Important

18) Women who are mothers have bodies that are

1	2	3	4	5	6	7
Not At All						Extremely
Sexy						Sexy

19) Compared to women in general, women who are mothers have bodies that are

1	2	3	4	5	6	7
Much Less						Much More
Sexy						Sexy

20) Women who are mothers are

1	2	3	4	5	6	7
Not at all						Extremely
Sexually						Sexually
Confident						Confident

21) Compared to women in general, women who are mothers are

1 2 3 4 5 6 7
Much Less Sexually Confident Much More Sexually Confident

22) Women who are mothers have

1 2 3 4 5 6 7
No Sexual Desire Strong Sexual Desire

23) Compared to women in general, women who are mothers have

1 2 3 4 5 6 7
Much Less Sexual Desire Much More Sexual Desire

24) Women who are mothers have

1 2 3 4 5 6 7
No Sexual Interest Strong Sexual Interest

25) Compared to women in general, women who are mothers have

1 2 3 4 5 6 7
Much Less Sexual Interest Much More Sexual Interest

26) Women who are mothers want to engage in sexual activity with themselves

1 2 3 4 5 6 7
Never Frequently

27) Compared to women in general, women who are mothers want to engage in sexual activity with themselves

1 2 3 4 5 6 7
Much Less Often Much More Often

28) Women who are mothers enjoy engaging in sexual activity with themselves

1 2 3 4 5 6 7

Never

Frequently

29) Compared to women in general, women who are mothers enjoy engaging in sexual activity with themselves

1	2	3	4	5	6	7
Much Less						Much More
Often						Often

30) Women who are mothers engage in sexual activity with a partner

1	2	3	4	5	6	7
Never						Frequently

31) Compared to women in general, women who are mothers engage in sexual activity with a partner

1	2	3	4	5	6	7
Much Less						Much More
Often						Often

32) Women who are mothers want to engage in sexual activity with a partner

1	2	3	4	5	6	7
Never						Frequently

33) Compared to women in general, women who are mothers want to engage in sexual activity with a partner

1	2	3	4	5	6	7
Much Less						Much More
Often						Often

34) Women who are mothers have sexual fantasies

1	2	3	4	5	6	7
Never						Frequently

35) Compared to women in general, women who are mothers have sexual fantasies

1	2	3	4	5	6	7
Much Less						Much More
Often						Often

36) Women who are mothers can act on sexual fantasies if they wish

1 2 3 4 5 6 7
Never Frequently

37) Compared to women in general, women who are mothers can act on sexual fantasies if they wish

1 2 3 4 5 6 7
Much Less Often Much More Often

38) Women who are mothers have sexual experiences that are

1 2 3 4 5 6 7
Not at all Pleasurable Extremely Pleasurable

39) Compared to women in general, women who are mothers have sexual experiences that are

1 2 3 4 5 6 7
Much Less Pleasurable Much More Pleasurable

40) Women who are mothers experience sexual pleasure that is

1 2 3 4 5 6 7
Not at all Intense Extremely Intense

41) Compared to women in general, women who are mothers experience sexual pleasure that is

1 2 3 4 5 6 7
Much Less Intense Much More Intense

42) Women who are mothers experience sexual activity as

1 2 3 4 5 6 7
Not at all Enjoyable Extremely Enjoyable

43) Compared to women in general, women who are mothers enjoy sexual activity

1 2 3 4 5 6 7
Much Less Much More

Enjoyable

Enjoyable

44) Women who are mothers experience orgasms

1 2 3 4 5 6 7
Never Frequently

45) Compared to women in general, women who are mothers experience orgasms

1 2 3 4 5 6 7
Much Less Much More
Often Often

46) Women who are mothers find orgasms

1 2 3 4 5 6 7
Not at all Extremely
Enjoyable Enjoyable

47) Compared to women in general, women who are mothers find orgasms

1 2 3 4 5 6 7
Much Less Much More
Enjoyable Enjoyable

Appendix I: Attitudes Towards Mothers as Sexual Beings Scale

This questionnaire asks about your perceptions or beliefs about mothers as sexual people. For each item, please circle the number that best shows your thoughts and beliefs. Your answers will be private and anonymous.

Factor 1

Domain: Quality of Mothering and Sexuality

1) Sexy women who are mothers are more likely to be:

1	2	3	4	5	6	7
Very Bad Mothers						Very Good Mothers

2) Sexy women who are mothers are more likely to be:

1	2	3	4	5	6	7
Very Irresponsible Mothers						Very Responsible Mothers

3) Sexy women who are mothers are more likely to be:

1	2	3	4	5	6	7
Very Ineffective Mothers						Very Effective Mothers

4) Sexual women who are mothers are more likely to be:

1	2	3	4	5	6	7
Very Bad Mothers						Very Good Mothers

5) Sexual women who are mothers are more likely to be:

1	2	3	4	5	6	7
Very Irresponsible Mothers						Very Responsible Mothers

6) Sexual women who are mothers are more likely to be:

1	2	3	4	5	6	7
Very Ineffective Mothers						Very Effective Mothers

Factor 2
Domain: Mothers' Sexual Functioning

7) Compared to women in general, women who are mothers have

1	2	3	4	5	6	7
Much Less Sexual Desire						Much More Sexual Desire

8) Compared to women in general, women who are mothers have

1	2	3	4	5	6	7
Much Less Sexual Interest						Much More Sexual Interest

9) Women who are mothers engage in sexual activity with a partner

1	2	3	4	5	6	7
Never						Frequently

10) Compared to women in general, women who are mothers engage in sexual activity with a partner

1	2	3	4	5	6	7
Much Less Often						Much More Often

11) Compared to women in general, women who are mothers want to engage in sexual activity with a partner

1	2	3	4	5	6	7
Much Less Often						Much More Often

12) Women who are mothers can act on sexual fantasies if they wish

1	2	3	4	5	6	7
Never						Frequently

13) Compared to women in general, women who are mothers can act on sexual fantasies if they wish

1	2	3	4	5	6	7
Much Less Often						Much More Often

Factor 3
Domain: Sexual Pleasure and Enjoyment

14) Women who are mothers have sexual experiences that are

1	2	3	4	5	6	7
Not at all Pleasurable						Extremely Pleasurable

15) Women who are mothers experience sexual pleasure that is

1	2	3	4	5	6	7
Not at all Intense						Extremely Intense

16) Women who are mothers experience sexual activity as

1	2	3	4	5	6	7
Not at all Enjoyable						Extremely Enjoyable

17) Women who are mothers find orgasms

1	2	3	4	5	6	7
Not at all Enjoyable						Extremely Enjoyable

Appendix J: Adverse Childhood Experiences Questionnaire

Adverse Childhood Experience (ACE) Questionnaire

Finding your ACE Score ra hbr 10 24 06

While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household often ...
Swear at you, insult you, put you down, or humiliate you?
or
Act in a way that made you afraid that you might be physically hurt?
Yes No If yes enter 1 _____
2. Did a parent or other adult in the household often ...
Push, grab, slap, or throw something at you?
or
Ever hit you so hard that you had marks or were injured?
Yes No If yes enter 1 _____
3. Did an adult or person at least 5 years older than you ever...
Touch or fondle you or have you touch their body in a sexual way?
or
Try to or actually have oral, anal, or vaginal sex with you?
Yes No If yes enter 1 _____
4. Did you often feel that ...
No one in your family loved you or thought you were important or special?
or
Your family didn't look out for each other, feel close to each other, or support each other?
Yes No If yes enter 1 _____
5. Did you often feel that ...
You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
or
Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
Yes No If yes enter 1 _____
6. Were your parents ever separated or divorced?
Yes No If yes enter 1 _____
7. Was your mother or stepmother:
Often pushed, grabbed, slapped, or had something thrown at her?
or
Sometimes or often kicked, bitten, hit with a fist, or hit with something hard?
or
Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?
Yes No If yes enter 1 _____
8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
Yes No If yes enter 1 _____
9. Was a household member depressed or mentally ill or did a household member attempt suicide?
Yes No If yes enter 1 _____
10. Did a household member go to prison?
Yes No If yes enter 1 _____

Now add up your "Yes" answers: _____ This is your ACE Score

Appendix K: University of Kentucky IRB Approval Letter



Office of Research Integrity
IRB, RDRC

Initial Review

Approval Ends
December 7, 2017

IRB Number
16-0960-P4S

TO: Kristen Mark, Ph.D.
Kinesiology - Health Promotion

122 Seaton Building
0219
PI phone #: (859)257-8935

FROM: Chairperson/Vice Chairperson
Non-medical Institutional Review Board (IRB)

SUBJECT: Approval of Protocol Number 16-0960-P4S

DATE: December 8, 2016

On December 8, 2016, the Non-medical Institutional Review Board approved your protocol entitled:

Parents and Couples Study

Approval is effective from December 8, 2016 until December 7, 2017 and extends to any consent/assent form, cover letter, and/or phone script. If applicable, attached is the IRB approved consent/assent document(s) to be used when enrolling subjects. **[Note, subjects can only be enrolled using consent/assent forms which have a valid "IRB Approval" stamp unless special waiver has been obtained from the IRB.]** Prior to the end of this period, you will be sent a Continuation Review Report Form which must be completed and returned to the Office of Research Integrity so that the protocol can be reviewed and approved for the next period.

In implementing the research activities, you are responsible for complying with IRB decisions, conditions and requirements. The research procedures should be implemented as approved in the IRB protocol. It is the principal investigators responsibility to ensure any changes planned for the research are submitted for review and approval by the IRB prior to implementation. Protocol changes made without prior IRB approval to eliminate apparent hazards to the subject(s) should be reported in writing immediately to the IRB. Furthermore, discontinuing a study or completion of a study is considered a change in the protocol's status and therefore the IRB should be promptly notified in writing.

For information describing investigator responsibilities after obtaining IRB approval, download and read the document "PI Guidance to Responsibilities, Qualifications, Records and Documentation of Human Subjects Research" from the Office of Research Integrity's IRB Survival Handbook web page [<http://www.research.uky.edu/ori/IRB-Survival-Handbook.html#PIresponsibilities>]. Additional information regarding IRB review, federal regulations, and institutional policies may be found through ORI's web site [<http://www.research.uky.edu/ori>]. If you have questions, need additional information, or would like a paper copy of the above mentioned document, contact the Office of Research Integrity at (859) 257-9428.

Norm Van Tubergen, PhD/TH

Chair/Vice Chairperson

see blue.

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Are you in a long-term relationship for 3+ years? Do you have kids?

Are you 18+ and willing to participate in a study on parents and long-term couples?

If so, we would love to hear from you!

To gain information about the contextual features of parents in long-term relationships, we want you to complete an online survey and a 30-day daily electronic report. We will pay up to \$30 per person as an incentive for your participation.

CONTACT
Christine Leistner
parentsandcouples@gmail.com
740.707.6958



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Christine E. Leistner

Place of birth: Napoleon, Ohio, USA

Education

2012 Master of Arts, Ohio University, Athens, OH

Major: International Community Development (concentration in Public Health)

2007 Bachelor of Arts, Ohio University, Athens, OH

Major: Psychology

2007 Bachelor of Arts, Ohio University, Athens, OH

Major: Plant Biology

Professional Experience

Instructor, University of Kentucky, Center for Community Outreach (2014-present)

Research Assistant, University of Kentucky, Center on Trauma and Children (2017-2018)

Research Coordinator, University of Kentucky, Sexual Health Promotion Lab (2014 – present)

Graduate Assistant, University of Kentucky, Center for Community Outreach (2012-present)

Instructor, University of Kentucky, Department of Kinesiology and Health Promotion (2016)

Instructor, Ohio University, Department of Linguistics (2009-2010)

Selected Publications and Presentations

Leistner, C.E. & Mark, K. P. (2017). Positive communication: The role of four positive communication strategies in influencing sexual desire, desire discrepancies, and satisfaction in a sample of parents. Oral presentation presented at the Society for the Scientific Study of Sexuality (SSSS). Atlanta, GA, USA. November 2017.

Leistner, C. E. & Mark, K. P. (2017). Impact of adverse childhood experiences on sexual and relational outcomes among parents in long-term partnerships. Poster presented at American Public Health Association (APHA). Atlanta, GA, USA. November, 2017.

Mark, K. P., Leistner, C. E., & Garcia, J. (2016). Impact of contraceptive type on sexual desire of women and of men partnered to contraceptive users. *Journal of Sexual Medicine*, 13, 1359-1368.

Leistner, C. E., & Mark, K. P. (2016). Fifty shades of sexual health and BDSM identity messaging: A thematic analysis of the Fifty Shades series. *Sexuality and Culture*, 20(3), 464-485. doi: 10.1007/s12119-016-9337-2