EXTERNAL STRESSORS, RESOURCES, AND RELATIONAL OUTCOMES AMONG UNDERREPRESENTED COUPLES: ACTOR-PARTNER INTERDEPENDENCE MODELS

by

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ABSTRACT

The primary aim of the dissertation was to examine associations among external stressors, resources, and relational outcomes among underrepresented populations and during historical transitions. The overarching theoretical frameworks were the integration of the systemic transactional model (Bodenmann, 1997; Bodenmann et al., 2016) and the stress resistance process within the conservation of resource theory (Hobfoll, 1985, 1989).

Given the efforts that went into accessing different samples of understudied and underrepresented couples from both the Eastern and the Western societies, the present dissertation is of two-study format, with one study based on Chinese heterosexual, married couples and the other study based on the U.S. same-sex couples (a summary of samples, design, and study variables is in Table 1). Across these two studies, I used dyadic data to conduct APIMs as well as its deviations for moderation and mediation (APIMoM and APIMeM), as the interdependence of both partners in a couple relationship requires such rigorous data collection and analyses procedure.

In Study 1, longitudinal (more specifically, three-annual-wave), dyadic data were collected from 268 Chinese couples who were in the early years of marriage, with this population experiencing drastic changes in Chinese society within recent the past several decades. In this study, external stressors were measured as general external stressors (stressors experienced by all couples). Relational outcomes were measured as marital quality (i.e., the overall, subjective evaluation of marital happiness and satisfaction). *For generally patterned findings that support theory,* they were as follows: The negative associations from high external stressors to low marital quality were attenuated by high level resources at all three ecological levels: (a) self-esteem (personal resource), (b) spousal support (relational resource), and (c) relationships with parents and parents-in-law (social network resource). *For more nuanced findings,* they were as follows*:* (a) Gender differences emerged in whether

specific resources attenuated the negative associations from high external stressors to low marital quality (e.g., Husbands' versus wives' self-esteem attenuated negative associations from high external stressors to low marital quality); (b) opposite patterns existed for the short-term versus long-term results for husbands' relational resources.

In Study 2, cross-sectional, dyadic data were collected from 144 same-sex couples in the United States. Couples in this study were experiencing the national campaign for the legalization of same-sex marriage during the data collection period (i.e., 2014-2015). In this study, external stressors were measured as sexual minority stressors (i.e., external stressors experienced uniquely by sexual minority population), and internalized homophobia and discrimination were both included. Relational outcomes were measured as intimate partner violence (IPV, a severe relational problem). *For generally patterned findings that support theory,* they were as follows: (a) High internalized homophobia and discrimination were related to high intimate partner violence perpetration; (b) High relational resources (i.e., commitment) attenuated the positive associations between high discrimination (i.e., probably as intermittently occurring stressors) and high IPV; and (c) High internalized homophobia (i.e., probably as constant and persistent stressors) was related to low relational resource (i.e., commitment), which in turn was related to high IPV perpetration. *For more nuanced findings,* they were as follows: Individuals' high levels of discrimination were related to their partner's high level of commitment, which in turn was related to low IPV perpetration for both spouses.

Overall, the present dissertation highlights that: When helping couples and families cope with stressors and obtain desirable relational outcomes (i.e., high relational quality and low intimate partner violence), it is necessary to (a) assess available resources at multiple ecological levels (relational, personal, social network), and (b) take into consideration whether stressors are intermittently occurring versus constant and persistent. Further, couples

and families with specific social cultural backgrounds may encounter unique challenges and/or possess unique resources, and the historical changes being experienced may further complicate experiences for each individual, couple, and family.

CHAPTER I. GENERAL INTRODUCTION

Overview of the Dissertation

Integrating the systemic transactional model (Bodenmann, 1997; Bodenmann et al., 2016) and the stress resistance process within the conservation of resource theory (hereafter referred to stress resistance process; Hobfoll, 1985, 1989), my dissertation topic is focused on associations among external stressors, resources, and relational outcomes among underrepresented couples. Given the work that has been done to get access to dyadic data from two different samples of underrepresented couples (i.e., Chinese married couples and American same-sex couples) and considering the scope of research questions, the committee has approved the two-study format of the dissertation.

Across two studies, I used dyadic data and conducted Actor Partner Independence Models (APIM; Kenny et al., 2006) and its derivation with moderating and mediating analyses (actor-partner interdependence moderation model, APIMoM; actor-partner interdependence mediation model, APIMeM; Ledermann et al., 2011). Such rigorous procedures are necessary in the field of couple relationship, primarily given the interdependence between two partners in a couple (Arriaga, 2013).

As briefly summarized in Table 1, Study 1 was based on three-wave, dyadic data from 268 Chinese heterosexual couples who were in the first several years of marriage. Most of participants included in Study 1 were born in the 1980s, a transitional period in China in which drastic social cultural changes occurred (e.g., one-child policy and "reforming and opening-up policy"; Ji, 2015a). Using APIMoM, this study focused on the moderating roles of resources in the associations from external stressors and relational outcomes.

Also seen in Table 1, Study 2 was based on cross-sectional, dyadic data from 144 same-sex couples in the United States. Data in study 2 was collected in 2014 and 2015, a critical transitional timepoint when the national debate around the legalization of same-sex marriage was ongoing. Using APIMoM and APIMeM, this study focused on the two

complementary hypotheses about the potential moderating and mediating roles of resources in associations from external stressors and relational outcomes.

Theoretical and Research Background

Selection of Study Constructs

The rationale for choosing each of the study constructs is as the following.

External Stressors. External stressors are defined as stressors that originate outside of close relationships and mainly include the interplay between partners and their social environment (e.g., stress at the workplace, financial stress, and social stress in the neighborhood; Bodenmann, 1997; Bodenmann et al., 2016; Randall & Bodenmann, 2009). External stressors merit attention in the field of couple relationships, not only because they are inevitable in the daily lives for couples, but also given that one partner's external stressors can greatly diminish their own and their spouse's capability to maintain relationship well-being (i.e., the actor and partner effect, respectively; Neff & Bradbury, 2007).

For example, external stressors divert time and attention away from activities that promote intimacy between partners (e.g., Fonseca et al., 2016). Further, external stressors increase the tendency for responding to marital challenges in a destructive manner (e.g., assigning more blame to the partner; Ledermann et al., 2010; Neff, & Karney, 2017). In addition, external stressors engender a series of physical problems (e.g., sleeping disorder and sexual dysfunction) and also increase the likelihood of problematic emotion expression (e.g., rigidity and anxiety; Bodenmann et al., 2007).

Specific to the external stressors in Study 1 and Study 2, I followed the definition proposed by Bodenmann and colleagues (1997, 2009, 2016) and included external stressors in workplace, neighborhood, as well as financial stressors etc. As such, I included different sources of external stressors that heterosexual couples in Study 1 may encounter in their lives. In Study 2, I selected sexual minority stressors as the indicator for external stressors

due to the consideration of social justice. In particular, there has been long-lasting heteronormativity in society (i.e., which includes an assumption that only sexual attraction between two opposite, biological sex is natural or acceptable; Kitzinger, 2005). Such inequality has rendered sexual minority couple populations to experience additional sets of external stressors (i.e., sexual minority stressors) that are not shared by their heterosexual counterparts (Meyer, 2003a, 2007). To fully understand and promote well-being of sexual minority population, researchers need to focus on how stressors created by social inequality (i.e., sexual minority stressors) have constrained sexual-minority families (for similar arguments, see Russell, 2019).

Relational outcomes. With respect to *relational outcomes*, positive and negative aspects both exist. Further, the lack of negative relational outcomes does not necessarily indicate the presence of positive relational outcomes. Instead, it has been suggested that positive and negative relational outcomes are two separate dimensions of relational outcomes (versus two opposing sides on a single dimension; Reis & Gable, 2003). To this end, a comprehensive depiction of relational outcomes requires the simultaneous inclusion of positive and negative aspects.

In this dissertation, I included marital quality and intimate partner violence as the indicators for positive and negative aspects of relational outcomes, respectively. Marital quality refers to the subjective, global evaluation of conjugal happiness and relational satisfaction (Fincham & Bradbury, 1987). I included marital quality because high marital quality promotes not only the stability of couple relationship (e.g., decreased likelihood of divorce) but also personal and mental health for both partners in the relationship (e.g., low depressive symptoms and low risk of mortality; for meta-analyses, see Proulx et al., 2007; Robles et al., 2014).

Intimate partner violence refers to a series of psychologically and physically aggressive behaviors between partners in a close relationship (Heyman et al., 2010). At first glance, it may seem unusual to include intimate partner violence as relational outcome, likely because this construct is often documented as a public health and legal issue by clinical psychologists, sociologists, feminist legal scholars, and victim advocates (Kopystynska & Beck, 2018).

However, the relational nature of intimate partner violence should not be ignored, especially given that intimate partner violence may originate from relational discord with the possibility to harm both spouses in the couple relationship (for reviews, see Kopystynska & Beck, 2018; Laskey et al., 2019). For example, physical injuries, depressive symptoms, suicide attempts, drug abuse, and posttraumatic stress disorder have been found among individuals who experienced intimate partner violence; being guilty, feeling distracted, and losing respect for oneself among partners have been documented among individuals who perpetrated intimate partner violence (Laskey et al., 2019). Further, 31% to 36% of adult males and females in the US. have victimized psychological or physical intimate partner violence at least once during their lifetime (data from the National Intimate Partner and Sexual Violence Survey; Smith et al., 2018).

Taken collectively the aforementioned epidemic proportions and the negative consequences experienced by both partners in the relationship, I would argue that intimate partner violence should be conceptualized as a serious, noteworthy relational problem that is fairly common even among community samples (versus rare cases that are only visible in clinical, court, and law enforcement samples; Kopystynska & Beck, 2018). Thus, including intimate partner violence as the negative aspect of relational outcomes is theoretically warranted. In addition, intimate partner violence is only moderately correlated with marital

quality, which is consistent with the statement on the distinction between positive and negative aspects of relational outcomes (r = -.22 across 72 studies; see Mallory et al., 2016).

Specific to relational outcomes in Study 1 and Study 2, consistent with the majority of existing studies in the field and on heterosexual couples, I included marital quality as the relational outcome in Study 1 (i.e., a sample of heterosexual couples from China; Cao et al., 2019b, 2019c; Fonseca et al., 2016; He et al., 2018; Li, et al., 2018). In Study 2 (i.e., the study based on U.S. same-sex couples), I included intimate partner violence as the indicator for relational outcome for following reasons. First, intimate partner violence has a higher prevalence among same-sex couples than among heterosexual couples, but it is more difficult for those who experienced intimate partner violence in same-sex relationships to get support and intervention than those who experienced intimate partner violence in heterosexual relationships (Hilinski Rosick et al., 2018; Russell & Sturgeon, 2019). By focusing on intimate partner violence in same-sex couple relationships, I aim to call for attention to a severe issue of which the impact has been much understudied. Second and following the social justice perspective, linking sexual minority stressors (i.e., stressors uniquely experienced by sexual minority population) to the excessive rate of intimate partner violence among same-sex couples can highlight how the discrimination and prejudice limit couples' abilities to maximize their optimal health and happiness (Russell, 2019).

Resources. Considering that external stressors are detrimental yet not avoidable, researchers have focused on *resources* possessed by individuals in relationships. Resources are defined as personal characteristics and social relationships that often help individuals navigate through stressful conditions (Hobfoll, 1985). Personal characteristics are internal and unique to an individual; thus, researchers have conceptualized them as *personal resources* (Hobfoll, 1985). Social relationships include a series of supportive others such as intimate partners, friends, and family (Hobfoll, 1985). Notably, two partners in a relationship

typically go through stressors together, and family and friends often treat two partners as a totality (Bodemann, 1997; Sprecher et al., 2002). Thus, social relationships can be further decomposed into *relational resources* (i.e., resources within relationship and shared by two partners; Pope et al., 2010) and *social network resources* (i.e., support provided by family, friends, or community surrounding the couple; Young et al., 2019).

Taken together, I make the argument that resources exist in the following three ecological levels: (a) personal, (b) relational, and (c) social network. In the dissertation, I included self-esteem as the indicator for personal resources in Study 1, as individuals with the characteristic of high self-esteem often cope with stressors in an effective manner (Dumont & Provost, 1999). I also included spousal support in Study 1 and commitment in Study 2, respectively, as the indicators for relational resources. Considering that the romantic partner is the primary figure from whom adults seek assistance, spousal support is a particularly important resource in stressful conditions (for a review, see Gariepy et al., 2016). As high commitment indicates the partner's willingness to invest in and persist in the relationship, commitment should be another resource that helps partners navigate through stressors (Afifi et al., 2016; Rusbult et al., 2001). For social network resources specified in Study 1, I included relationships with parents and parents-in-law, primarily because parents and parents-in-law are especially likely to support couples during the beginning stages of their marriage (Morr Serewicz, & Hosmer, 2011).

Integrating Systemic Transactional Model and Resistance Process to Examine Associations among Study Constructs

I decided to integrate systemic transactional model (Bodenmann, 1997; Bodenmann et al., 2016) and stress resistance process (hereafter referred to stress resistance process; Hobfoll, 1985, 1989), because (a) both of them are well-articulated and well-supported theories in the research field of stressors and well-being, and (b) more importantly, they

support and extend each other in examining the associations among external stressors, resources, and relational outcomes. The following three theoretical propositions are especially informative for the current study.

First, and for theoretical proposition related to the associations between external stressors and relational outcomes, systemic transactional model and stress resistance process both acknowledge the detrimental effects of external stressors (Bodenmann, 1997; Hobfoll, 1985). However, systemic transactional model extended stress resistance process by acknowledging the interdependence between two spouses in a relationship (Partner A/B) and indicating that external stressors experienced by Partner A should not only affect Partner A but also Partner B (Bodenmann, 1997; Bodenmann et al., 2016). Accordingly, it has been widely acknowledged that external stressors decrease positive relational outcomes and also increase negative relational outcomes (Bodenmann et al., 2007; Fonseca et al., 2016; Neff, & Karney, 2017). Moreover, and specific to the relational outcomes included in the present dissertation, researchers have found that external stressors experienced by one partner can predict over-time decrease of two spouses' marital quality in the next three to four years (Neff & Karney, 2007; Lavner et al., 2012). In addition, theoreticians have argued that external stressors strengthen the tendency toward perpetrating intimate partner violence, as individuals often experience more irritants and higher physiological arousal when experiences higher external stressors (Finkel, 2007).

Second, and for theoretical proposition related to the roles of resources in associations between external stressors and relational outcomes, systemic transactional model and stress resistance process both argue that resources can moderate the associations between stressors and relational outcomes (i.e., *moderating hypothesis*, Bodenmann, 1997; Bodenmann et al., 2016; Hobfoll, 1985, 1989). Whereas systemic transactional model focused primarily on relational resources, the stress resistance process can further inform researchers by indicating

possibility that resources at three ecological levels (i.e., relational, personal, and social network) all help reduce the detrimental effects of external stressors (Bodenmann, 1997; Bodenmann et al., 2016; Hobfoll, 1985, 1989).

Meanwhile, and for the third theoretical proposition, those who proposed systemic transactional model also made unique contribution in theorizing the roles of resources in associations with stressors and relational outcomes. That is, in addition to the moderating hypothesis, a *mediational hypothesis* (i.e., external stressors result in adverse relational outcomes by reducing resources) may also apply (Randall & Bodenmann, 2009). Specifically, coping with external stressors requests the utilization and depletion of resources (Afifi et al., 2016). When external stressors were *intermittently occurring* in lives, partners can use resources to buffer the negative associations from stressors to relational outcomes; however, when encountering *constant and persistent* stressors (stressors that repeatedly occur), partners often experience a continuous drain of resources without enough opportunities to replenish these depleted resources (Afifi et al. 2016; Karney et al., 2005). The depleted resources in turn often engender adverse relational outcomes (Karney et al., 2005; Randall & Bodenmann 2009).

Contributions of the Dissertation

The two studies in the dissertation will extend our understanding on the associations among external stressors, resources, and relational outcomes in three critical ways.

First, in Study 1, I will take the initial steps to examine the potential moderating roles of resources at multiple ecological levels (i.e., personal, relational, and social networks) in actor and partner associations from external stressors to relational outcomes. Typically, theories and empirical studies in the field of couple relationships have focused primarily on the moderating effects of relational resources (Bodenmann, 1997; Breitenstein et al., 2018). Yet, as stated in the section above, individuals use all available resources to cope with

external stressors, and negative consequences often occur when stressors exceed the totality of resources that individuals possess (Hobfoll, 1985). As such, ignoring personal and social networks possessed by partners may result in a piecemeal understanding on possible avenues for helping couples cope with external stressors.

Second, for both Study 1 and Study 2, the examination of associations among external stressors, resources, and relational outcomes in underrepresented populations provides a more nuanced depiction of how the two spouses in each couple experience and cope with stressors in different social cultural contexts. To date, studies on this research topic (i.e., external stressors, resources, and relational outcomes) have been based predominantly on heterosexual couples in Western society (Fonseca et al., 2016). However, findings and conclusions derived from already well-studied sample populations may not be applicable to still other understudied and underrepresented populations (e.g., couples in non-Western culture and couples of sexual minority population; Fincham & Beach, 2010; Karney & Bradbury, 2020).

Specifically, when comparing across different social cultural contexts, researchers have noticed variability in external stressors, resources, and relational outcomes as well as associations among these constructs. For example, and as stated in the variable selection section in the current chapter, sexual minority stressors are the unique set of external stressors that are experienced by sexual-minority populations but not necessarily shared by heterosexual counterparts (Meyer, 2003a, 2007). Further, the availability and effectiveness of resources likely vary across social cultural backgrounds (Hobfoll, 1988). As one example, personal resources are often more important resources in individualistic culture than in collectivistic cultures (Steel et al., 2018).

Third, as briefly noted previously, social values, cultural norms, as well the experience of each individual family all vary across different historical periods (Greenfield, 2017). Thus, researchers should therefore be relatively cautious when generalizing findings

and conclusions derived from the earlier time period to a later one (i.e., *the chronological variation*; Greenfield, 2017). Specific to the dissertation, China and the United States both underwent major reforms (to be discussed), which may have further complicated the associations among external stressors, resources, and relational outcomes.

For example, whereas the legalization of same-sex marriage in the United States has improved the general public's general support for sexual minority population, the national debate around this same legalization may also increase sexual minority population's exposure to potential pushbacks against same-sex relationships (e.g., anti-same-sex marriage discourses from social media and neighborhood; Kazyak & Stange, 2018; Frost & Fingerhut, 2016). As such, it is not clear whether sexual minority stressors were intensified or relieved when the legalization of same-sex marriage was ongoing in 2014-2015.

Similarly, contemporary China has been experiencing unprecedently uncertain time, given that the long-lasting tradition and the recent reforms often work together to influence marital and family lives (Ji, 2015a). For example, Chinese cultures have been characterized by collectivism that emphasizes social network and interpersonal relationships (Steel et al., 2018; Xu et al., 2007). Yet, with the emphasis on personal value introduced from Western culture to China since the 1980s, personal resources such as self-esteem may be becoming an increasingly salient resource for couples in contemporary China (Steel et al., 2018; Xu et al., 2007). Collectively, using data collected during transitional periods in China and the United States, respectively, the two studies aim to revisit associations among external stressors, resources, and relational outcomes at the time when the society is at crossroads.

CHAPTER II. STRESSORS AND DEVELOPMENTAL TRAJECTORIES OF MARITAL QUALITY DURING THE EARLY YEARS OF CHINESE MARRIAGE: BUFFERING EFFECTS OF RESOURCES AT MULTIPLE ECOLOGICAL LEVELS

(Paper to be submitted to *Journal of Social and Personal Relationships*)

Introduction

As stated in the Chapter 1, external stressors are stressors originating outside of the close relationship (e.g., stress at the workplace, financial stress, and social stress in the neighborhood; Bodenmann, 1997; Randall & Bodenmann, 2009). To date, the associations between external stressors and relationship quality (i.e., the subjective, global evaluation of conjugal happiness and relationship satisfaction; Fincham & Bradbury, 1987) have been well articulated (for a review, see Neff, & Karney, 2017). Further, and to better understand how external stressors shapes conjugal happiness across time, researchers have depicted developmental trajectories of marital quality, consistently identifying that external stressors experienced by one partner can predict over-time decreases of relationship quality of not only their own (actor effects, which is called spillover effect) but also of their partners (partner effects, which is called cross-over effects; Bodenmann, 1997; Neff & Karney, 2007; Lavner, Bradbury, & Karney, 2012). Such spillover and crossover effects may exist because external stressors deplete partner's time to maintain intimacy, engender psychological and physical problems such as sleeping disorders and sexual dysfunction, and increase the expression of problematic emotions such as rigidity and anxiety (for reviews, see Fonseca et al., 2016; Ledermann et al., 2010; Neff, & Karney, 2017).

As external stressors are detrimental to relationship quality in long term yet inevitable for each couple, it is necessary to identify factors that can attenuate the negative effects of external stressors. To date, the majority of existing studies on this topic has followed the systemic transactional model and focused on spousal support (i.e., support provided by intimate partner), primarily given that (a) unresolved and poorly handled stressors by the other partner impede the well-being of both spouses, and (b) spousal support is the necessary effort that guarantee the homeostasis, well-being, and satisfaction of the couple relationship (Bodenmann, 1997; Bodenmann et al., 2016). Accumulative evidence has indicated that

spousal support can prevent couple relationships from the detrimental consequences that are associated with external stressors (Aydogan, & Kizildag, 2017; Breitenstein et al., 2018; Merz et al., 2014).

Although informative, two critical limitations can be identified in the existing literature. First, following from the stress resistance process within the conservation of resource theory -- hereafter referred to as the stress resistance process -- individuals can use both personal characteristics and supportive social relationships as resources to limit the detrimental effects of stressors (Hobfoll, 1985, 1989). Whereas the romantic relationship is the most central social relationships for most adults, it is also notable that the couple relationship is embedded in a broader social network involving friends and families (Felmlee, 2001). As such, focusing primarily on spousal support (i.e., resources specific to romantic relationships), yet ignoring personal characteristics or social networks, may generate a piecemeal understanding of the potential avenues for how to best prevent couple relationships from the spillover and crossover effects of external stressors.

Second, and as noted in Chapter 1, studies based on non-Western couples are still relatively limited (for a review, see Fonseca et al., 2016). Yet, social cultural contexts may have shaped the stressful experiences of couples of different populations (Bodemann et al., 2007; Story & Bradbury, 2004). Further, the effectiveness of resources in attenuating the detrimental effects of external stressors may also vary across cultural values and social norms (Hobfoll, 1988). To this end, more efforts are needed to examine the extent to which the existing, well-documented findings in Western cultural backgrounds (i.e., findings that spousal support attenuating detrimental effects of external stressors) can be generalized to non-Western cultural backgrounds. Researchers also need to identify whether specific resources are uniquely beneficial among non-Western couples. Thus, the present study will

be based on Chinese couples, and an exposition of social cultural characteristics of contemporary China was displayed later.

Literature Review

Theoretical Frameworks

In its original writing, the stress resistance process (Hobfoll, 1985, 1989) focused on personal outcomes (i.e., physical and emotional health) rather than couple relationship well-being. That being said, this theory helps extend the systemic transactional model by a providing a more comprehensive understanding of factors that may buffer the spillover and crossover effects of external stressors on relationship quality.

As already stated in Chapter 1, resources include personal characteristics that are unique and internal to individuals themselves (i.e., personal resources) and supportive interpersonal relationships with others (i.e., social resources; Hobfoll, 1985, 1989). In the field of couple relationships, social resources need to be further decomposed into relational resources (i.e., resources that can be shared between two spouses or two relational partners) and social network resources (i.e., supportive relationships with family, friends, and other individuals or groups around the couple; Pope et al., 2010; Young et al., 2019).

Such decomposition among resources is necessary, as the two partners in a relationship go through external stressors and interact with the social network as a totality (Bodemann, 1997; Sprecher et al., 2002). As another central argument from the stress resistance process, individuals use all available resources to cope with external stressors, and negative consequences occur when stressors exceed resources (Hobfoll, 1985, 1989). Integrating the systemic transactional model and the stress resistance process, it is necessary to go beyond the well-established buffering roles of relational resources to instead comprehensively examine how multiple resources (i.e., personal, relational, and social network) moderate associations from external stressors to relationship quality.

Empirical studies

Personal resources. Self-esteem, which is the personal resource included in the present study, is typically defined as the individuals' appraisal of their own value (Erol, & Orth, 2013). As a desired personal characteristic, high self-esteem should promote individuals' own and the partners' relationship quality (Barelds, 2005; Larson, & Holman, 1994). Based on the theoretical argument and studies below, self-esteem should attenuate the negative associations from high external stressors to low couple relationship well-being.

In particular, and as noted in Chapter 1, external stressors can deplete relationship well-being by (a) taking time and efforts that can otherwise be used to maintain the couple's relationship and (b) increasing the negative emotion felt and expressed by partners in the couple's relationship (Bodenmann et al., 2007; Neff, & Karney, 2017). Yet, such two ways in which external stressors jeopardize the couple relationship may *not* be true for those of high self-esteem given the following consideration.

Specifically, in comparison to those with low self-esteem, individuals with high self-esteem engage in more problem-specific, active coping and less emotion-specific, avoidant coping (Dumont & Provost, 1999). To this end, individuals with high self-esteem may solve stressors in relatively effective ways, which then leaves them more time and efforts to engage in activities that promote intimacy between two relational partners. In addition, individuals with higher self-esteem generally experience more pleasant, positive emotions (Leary & Baumeister, 2000). In comparison to individuals with lower self-esteem, individuals with high self-esteem are typically less overwhelmed by anxiety and distress in stressful conditions (Greenberg et al., 1992; Mäkikangas, A., & Kinnunen, 2003). Thus, external stressors will not engender the tendency to express more negative emotion among individuals of high self-esteem (Callea et al., 2017). In this study, I am using a sample of Chinese couples to take the initial steps in the field of couple relationship to test the moderating roles

played of *self-esteem* in stressful conditions. Given the social reforms in contemporary China (elaborated later), it is plausible to regard self-esteem as a beneficial personal resource in Chinese marriage as well.

Relational resources. Spousal support, which is the relational resource included in the present study, refers specifically to support provided by romantic partners (Gariepy et al., 2016). Spousal support can be expressed in multiple different ways (e.g., emotional support such as encouragement or informational support such as suggesting) and deemed as effective by the receivers (High & Steube, 2014). Moreover, and as stated in the introduction of this chapter, couple relationships are the most important emotional bonds in adulthood, and romantic partners are typically the primary figures with whom adults are attached (Markiewicz et al., 2006; Shaver & MiKulincer, 2006). Thus, relational partners may have been the primary source of support for individuals experiencing external stressors, which seems the reason why spousal support is often more beneficial than support provided by families and friends (Bodenmann et al., 2006; Reid & Reczek, 2011; Gariepy et al., 2016). Collectively, and as indicated in Chapter 1, researchers have consistently found that high spousal support attenuates the negative associations between high external stressors and low couple relationship well-being among Western couples (Aydogan, & Kizildag, 2017; Breitenstein et al. 2018; Merz et al., 2014).

In this study, I am using a sample of Chinese couples to test whether the findings of moderating roles of spousal support can be replicated in Chinese marriage. Given the social reforms in contemporary China (elaborated later, the relational resource of spousal support may work in different ways among the present Chinese sample from that just described for the Western samples.

Social network resources. Relationships with parents and parents-in-law (i.e., the extent of the closeness in the relationships with parents and parents-in-law) are the social

network resource included in the present study. Broadly, social networks include a collection of people known by individuals, such as extended family (e.g., family relationships related by blood and marriage, or self-ascribed associations beyond marital the dyad and nuclear family) and close friends (Bryant, & Conger, 1999; Schmeeckle, & Sprecher, 2004). As the social network includes relationships that couples can rely on during stressful situations, there has been call for studies examining how social network resources benefit couple relationship well-being (Chong et al., 2017; Morr Serewicz, & Hosmer, 2011; Sprecher, 2011).

Moreover, among all social networks, relationships with parents and parents-in-law are often salient for two reason. First, the number of friends and closeness with friends both decrease after couples marry, and relationships with other extended family members such as siblings-in-law are generally distant (Morr Serewicz, & Hosmer, 2011; Vanhoutteghem et al., 2014; Yoshimura, 2010). In contrast, across both Western and non-Western cultures, contact with parents and parents-in-law is modestly to highly frequent as well as emotionally involved, especially during the first several years of marriage (Danielsbacka et al., 2015; Santos & Levitt, 2007; Shih et al., 2010).

Second, researchers have found that closeness of couple relationship with parents and parents-in-law often predict high relationship quality, primarily because such closeness increases the parents' and parents-in-law's tendency to help couples cope with stressors (Cao et al., 2019a; Fingerman et al., 2012; Reczek et al., 2010). However, given the cultural expectations and norms in China (elaborated later), the relationships with parents and parents-in-law may be a uniquely beneficial resource for Chinese couples.

Chinese Couples as the Sample Population

As my study is based on a sample of Chinese couples at the beginning stage of marriage, an exposition for social cultural contexts in contemporary China helps inform the examination the associations among stressors, resources, and marital quality among this

sample population. Specifically, China has undergone a series of dramatic political, economic, and cultural changes during past several decades (Davis, 2014; Xu et al., 2007). Such social changes may have reshaped external stressors and resources for Chinese couples.

For external stressors, the transition from a planned economy period to a marketization period has increased the those encountered by Chinese individuals. Take external stressors at workplace as one example, Chinese individuals used to work in the state-owned enterprises in which wages were steady, the workload and workhours were standardized, and the dismissals were rare (Warner, 2001). However, post economic marketization, enterprises became profit- and efficiency- oriented, and life-long positions were no longer promised (Cao & Rubin, 2014). Given the concern for job security, workers in contemporary China are particularly overburdened by long work hours (Nie et al., 2015). In addition, and take external stressors specific to financial domain as another example, the development of the housing market in the marketization period also dramatically increased rents and house prices, which created greater financial burdens for couples in contemporary China (Li & Shin, 2013; Xu et al., 2007).

With respect to resources, cultural changes may work together with long-lasting traditions to shape the roles of personal resources (i.e., self-esteem), relational resources (i.e., spousal support), and social network resource (i.e., relationships with parents and parents-in-law). For personal resources, Chinese society has been traditionally organized by collectivism that emphasizes the interpersonal relationship more than personal capabilities (Lui & Rollock, 2018). When stressors occur, collectivistic individuals often rely more on social relationships, which may be the reason why positive associations between self-esteem and mental health are weaker in collectivistic cultures than in individualistic cultures (for meta-analyses; see Diener & Diener, 1995; Steel et al., 2018). Yet, the ‘‘1978 reform and opening-up policy’’ promoted exchanges between Chinese and Western countries, and the emphasis

on personal values or traits has also been introduced from Western cultures to contemporary China (Ji, 2015a). As such, self-esteem may become an increasingly important, personal resource that helps Chinese couples cope with external stressors.

For relational resources, one traditional norm in China is that marriage is tied primarily by partners' responsibilities and obligations toward each other (Ng et al., 2010). While many Chinese spouses gradually accept the Western marital culture characterized by intimacy, partners' responsibilities and obligations toward each did not fade in Chinese marriages (Fok & Cheng, 2018). Thus, affectional bonds in Chinese marriages seem to be increasingly solid, which in turn increases the tendency for partners to support each other. However, such propositions for increased relational resource may not be found for Chinese couples who are in the beginning stages of marriage (i.e., the current sample). I put forward this speculation because the majority of current sample was the only child in their family of origin and had often grown up with the experience of parental indulgence (i.e., given the implementation of "one-child policy"; Settles et al., 2013). As such, Chinese individuals who were currently in the beginning stage of marriage may have developed an egocentric tendency and preferred to be over benefited in the relationship (Lan et al., 2017). Such egocentric tendency may then prevent these individuals from detecting the needs of spouses and from providing appropriate support to their spouses. Collectively, the social changes and traditional norms may have engendered uncertainty about whether spousal support (i.e., relational resource) is beneficial among Chinese couples in the early stage of marriage.

For social network resources, the following two reasons help to justify why I specified relationships with parents and parents-in-law as resources that were uniquely beneficial in Chinese marriages. First, the geographical proximity with parents and parents-in-law renders this resource particularly accessible for Chinese couples included in the present study. To date, about two thirds of Chinese couples still live with at least one elderly

parent and parent-in-law, which is in stark contrast to 14% in Western countries (e.g., US; Kim et al., 2015). Even for Chinese couples who lived independently in their own house, the average time to visit parents and parents-in-law is within an hour (Chu et al., 2011). As such, seeking timely help from parents and parents-in-law seems easier for Chinese couples than for their Western counterparts.

Second, and based on cultural norms in China, couples are highly interdependent with their extended family, and it is expected and necessary for married couples to rely on parents and in-law in stressful conditions. Specifically, Chinese families are historically organized based on filial piety in which children are socialized to obey parents; thus, parental opinions have diminishing yet still critical influence for individuals who are married in contemporary China (Whyte, 2004; Zhang & Kline, 2009). Moreover, given the high housing prices and heavy workloads among those in the early years of marriage, it is relatively common for Chinese couples to rely on parents and parents-in-law specific to housing and family chores (Li & Shin, 2013; Nie et al., 2015). In contrast, couples in Western countries are typically viewed as autonomous units that functioned separately from their extended families (Morr Serewicz, 2006). As such, and according to a study on married individuals in Western countries (most of whom were racial minorities and facing financial struggles), receiving assistance from parents and parents-in-law in stressful condition creates burdens (versus relief), presumably because such assistance erodes the married individuals' autonomy (Reid & Reczek, 2011).

The Present Study

In this present study, I used three-annual-wave, dyadic data from 268 Chinese couples. I first tested the actor and partner associations from external stressors at Wave 1 to developmental trajectories of marital quality across Wave 1, Wave 2, and Wave 3. The major consideration for using developmental trajectories of marital quality as my outcome is to

follow and replicate existing studies in the field as well as to better understand why relationship quality evolves across time (as indicated in the introduction of the current chapter). I then tested my primary research questions: The moderating roles of self-esteem (i.e., personal resource), spousal support (i.e., relational resource), and relationships with parents and parents-in-law (i.e., social network resource) in the well-established actor and partner associations from external stressors to developmental trajectories of marital quality.

The current sample has additional strength. That is, the homogeneous nature of relationship length for the entire sample -- those in the early stages of their marriage -- rules out the possibility that associations among my key study constructs vary at different stages of marriage (Karney & Bradbury, 1995). Collectively, my study can provide a more comprehensive understanding of potential resources that couples can use to reduce the negative effects of external stressors while also expanding the knowledge from Western couples to still understudied Chinese couples in their early years of marriage.

Method

Participants and Procedures

Data in the current study were drawn from the Chinese Newlyweds Longitudinal Study (CNLS), a project that examined predictors of couple relationship well-being in the early stage of Chinese marriage. Researchers of the larger project recruited Chinese, heterosexual couples primarily via online advertisements, community posters, and acquaintance referrals. To be eligible, couples were (a) in their first marriage, (b) without a child, (c) married for less than 3 years, and (d) residing in Beijing. In 2011 (i.e., Wave 1), 268 eligible couples participated the survey. In 2012 (i.e., Wave 2) and 2013 (i.e., Wave 3), 224 couples (retention rate = 83.58%) and 203 couples (retention rate = 75.75%) participated in the Wave 2 and Wave 3 surveys, respectively.

To identify potential selection effects, multivariate analysis of variance (MANOVA) was conducted on key study covariates at Wave 1 and covariate (see Table 2 for the list). Among all 16 comparisons, 2 statistically significant differences emerged. That is, in comparison to their counterparts who did not participate in all three waves, wives who participated in all three waves had higher levels of monthly income ($M_{\text{all three waves}}$ = 5,252 RMB versus $M_{\text{not all three waves}}$ = 5,077 RMB, adjusted p = .045, partial η^2 = .022), and husbands who participated in all three waves reported higher levels of marital quality at Wave 1 ($M_{\text{all three waves}}$ = 6.87 versus $M_{\text{not all three waves}}$ = 6.46, adjusted p < .01, partial η^2 = .037). Both differences were small-to-medium-sized (i.e., partial η^2 falls into the range .01 to .06) and were therefore practically notable (for a review, see Richardson, 2011).

For all 268 couples and at Wave 1, the average length of marriage was 13.59 months (*SD* = 9.69). Husbands' average age was 29.59 years old (*SD* = 3.25), and wives' average age was 28.08 years old (*SD* = 2.51) for wives. Median levels of monthly income were 7,000 RMB (*SD* = 6,180.22; approximately $1017.26) for husbands and 5,000 RMB (*SD* = 3,996.03; approximately $726.62) for wives, respectively. The mode of education was a bachelor's degree for husbands and wives.

Data collection procedures were approved by the university's Institutional Review Board and were consistently used across all three waves. Both partners within a couple relationship were invited to the university lab. For couples who cannot come, trained research assistants scheduled home visits for data collection. For each couple, research assistants described the study and obtained the informed consent forms from both partners. Husbands and wives then separately completed a series of self-report questionnaires. Lastly, couples were debriefed and were paid 100 RMB (approximately $16) for their participation in the survey part of the study.

Measures

External stressors at Wave 1. A 19-item stressful life event experienced scale was used at Wave 1 to assess negative life events during the last 12 months. The 19 items were adapted from the Life Experiences Survey (Sarason et al.,1978), the Relationship Issues Survey (Epstein & Werlinich, 1999), and the Life Event Scale (Yang & Zhang, 1999). All these items focused primarily on stressful events or issues for work (e.g., losing a job), social network relationships (e.g., relationship difficulties with close friends), personal problems (e.g., severe diseases or injuries), and accidents or natural disasters (e.g., car accidents). On each item, participants responded how often the event occurred during the past 12 months on a 4-point Likert scale ranging from 1 (*Never*) to 4 (*A lot*). Average scores of 19 items were calculated and used in analyses, and higher scores indicated more external stressors. Cronbach's αs in the current study were .73 for husbands and .71 for wives.

Self-esteem at Wave 1. The 10-item unidimensional scale Rosenberg Self-Esteem (RSE; Rosenberg, 1979) was used to assess self-esteem. Partners responded to each item on a 4-point Likert scale ranging from 1 (*very strong disagreement*) to 4 (*very strong agreement*). Example items were "On the whole, I am satisfied with myself" and "I certainly feel useless at times (Reverse)". With reverse items recoded, average scores for 10 items were calculated and used in analyses. Higher scores indicated higher levels of self-esteem. Cronbach's αs in the current study were .83 for husbands and .86 for wives.

Spousal support at Wave 1. The revised Support in Intimate Relationships Rating Scale (SIRRS; Barry et al., 2009; Dehle et al., 2001) included the following four subscales: esteem/emotional, physical comfort, informational, and tangible supports. The esteem/emotional support subscale included 8 items (e.g., Told me everything would be ok). The physical comfort subscale included 4 items (e.g., Held my hand). The informational support included 8 items (e.g., Shared facts or information with me about a situation I was facing). The tangible support included 5 items (e.g., Did something to help me directly). For

each item, the respondents indicated how often their partners enacted specific support behavior on a 4-point Likert scale ranging from 1 (*never*) to 4 (*often*). For the scores of each subscale, scores of all items were averaged. Cronbach's *α*s for four subscales in the current study were .81- .88 for husbands and .89- .91 for wives. To obtain a final score of spousal support that was used in analyses, I averaged subscale scores for esteem/emotional, physical comfort, informational, and tangible supports. Higher scores indicated higher levels of spousal support. Cronbach's *α*s across four subscales in the present study were .75 for husbands and .74 for wives.

Relationship with parents and parents-in-law at Wave 1. Four self-developed items were used to assess each partners' relationships with father, mother, father-in-law, and mother-in-law, respectively. Partners responded to each item on a 5-point Likert scale ranging from 1 (*very bad*) to 5 (*very good*). Average scores were calculated and used in analyses. Higher scores indicated more close relationship with parents. Cronbach's *α*s in the current study were .83 for husbands and .79 for wives.

Marital Quality at Wave 1, Wave 2, and Wave 3. The 6-item unidimensional Quality Marriage Index Scale (QMI; Norton, 1983) was used to assess partners' appraisals of the relationship quality. Partners responded to the first five items on a 7-point Likert scale ranging from 1 (*very strong disagreement*) to 7 (*very strong agreement*). An example item was "We have a good marriage." Partners then indicated how happy they were in their relationship with all things considered (i.e., the sixth item). The response ranged from 1 (*very unhappy*) to 10 (*perfectly happy*). Average scores for all six items were calculated and used in analyses. Higher scores indicated higher levels of relationship quality. Cronbach's *α*s in the current study were .93, .95, and .96 for husbands and .95, .96, and .97 for wives across three waves.

Covariate. In addition to the demographic information listed above, two covariates were measured and included given their associations with key study variables (Jose et al., 2010; Michel et al., 2011). In particular, cohabiting before marriage was assessed using a binary variable, with 0 indicating that two partners within a couple did not cohabit together before marriage and 1 indicating that two partners within a couple cohabited before marriage. Parental status was also assessed using a binary variable, with 0 indicating that couples did not have a child together and 1 indicating that couples had child(ren) by Wave 3.

Analytic Plans

Analyses were conducted in R 4.0.0 (R Core Team, 2020), and the analyses occurred in the following three steps: (1) addressing the distribution of outcomes, (2) missing data imputation, and (3) model estimation.

Step 1: Addressing the distribution of outcomes. As seen in Panel A of the Appendix A, husbands' and wives' marital quality were negatively skewed. Moreover, within a potential range of 1 (*lowest levels of marital quality that can be assessed on QMI)* to 7.5 (*highest level of marital quality that can be assessed on QMI)*, a notable proportion of participants reported full marks on QMI (i.e., valid percentages = 18.3% for husbands at Wave 1, 17.2% for wives at Wave 1, 15.7% for husbands at Wave 2, 12.0% for wives at Wave 2, for 15.8% husbands at Wave 3, and 14.9% for wives at Wave 3, respectively). As marital quality refers to the overall evaluation of conjugal happiness and relationship satisfaction (Fincham, & Bradbury, 1987), the full marks should indicate a highly happy and satisfied marital relationship.

To deal with the distribution, I recoded the marital quality by subtracting the original score of marital quality from 7.5 (i.e., the full marks on the scale). After recoding, 0 indicated highly happy and satisfied couple relationships, and higher scores indicated more unhappiness and dissatisfaction. The recoded scores of marital quality (i.e., continuous

variables of the zero-inflated distributions; seen in Panel B of the Appendix A) were then used for the following analyses.

Step 2: Missing data imputation. As stated already in participants and procedure section, the proportion of missing values at Wave 2 and Wave 3 were notable (> 10%), and the missingness at Wave 2 and Wave 3 was related to variables assessed at Wave 1. To this end, I used variables collected at Wave 1 as auxiliary predictors to conduct a multiple imputation on variables measured at Wave 2 and Wave 3 (Pedersen et al., 2017). Using the package *MICE* (van Buuren & Groothuis-Oudshoorn, 2010), I generated five imputed datasets, which should be sufficient to deal with the bias for the dataset in which the proportion of missing is 50% or lower (Pedersen et al., 2017). The five imputed datasets were then included in model estimation (Step 3).

Step 3: Model estimation. Given the non-independent nature of multiple-wave, dyadic data, I conducted Bayesian multilevel modeling (MLM) via *brms* 2.13.0, an R package that uses Stan to estimate Bayesian multilevel models (Bürkner, 2017; 2018). I used Bayesian to traditional Null-Hypothesis Significance Testing (NHST) for the following reasons. First, Bayesian analyses are less sensitive than NHST to sample size and will, therefore, generate more robust estimation (Branch, 2014). Second, Bayesian estimation reflects the uncertainty of the population parameter better than NHST. In particular, NHST represents the uncertainty of the parameter using a confidence interval (CI), which reflects the upper and lower limits of values that may not be rejected by $p < .05$ but provides no probability that the specific parameter value is within the range. In contrast, Bayesian estimation explicitly indicates the uncertainty of parameters by generating the posterior distribution (i.e., high density interval (HDI); Kruschke & Liddell, 2018), which reflects the probability that the specific parameter is within the range. As a result, Bayesian analysis

allows researchers to make specific probability statements about each parameter, given the model and the data.

To determine whether a notable effect existed, researchers typically reported the 95% HDI: If 0 was not included in the 95% HDI, researchers can report the existence of a notable effect (Makowski et al., 2019). Yet, other researchers argued 89% HDI as a reasonable range to characterize the uncertainty related to the estimation, as 89% HDI were more stable than 95% HDI (for reviews, see Kruschke, 2014; Makowski et al., 2019). As a compromise of these two different opinions, I reported the default 95% HDI from the *brms* package (Bürkner, 2017, 2018) and also used the *bayesTestR* package (Makowski et al., 2019) to check the 89% HDI for each parameter. I regarded the 95% HDI that did not contain 0 as strong evidence for notable effects and an 89% HDI that did not contain 0 as modest evidence for notable effects. For the estimation of parameters in each model, I used 4 chains to generate posterior distributions (for each chain, the number of iterations = 2000, and burnin iterations= 1000). Model convergence was checked based on effective sample sizes and visualization of trace plots.

Given the zero-inflated distribution of the outcomes (i.e., the recoded scores of marital quality), I used the hurdle-gamma regression in *brms*. Generally speaking, hurdle-gamma regression includes two model components: (a) a binary part that predicts whether or not zero is reported; (b) a continuous part that predicts, if a nonzero value is reported, whether the score is higher or lower (for a review, see Hofmans, 2017). Specific to the current study, the binary part predicted whether participants reported full marks on QMI and in a highly happy and satisfied relationship; the continuous part predicted that, when participants did not report full marks on QMI, whether some participants reported more unhappiness and dissatisfaction. When interpreting coefficients in both the binary part and

continuous part of hurdle-gamma regression in *brms*, coefficients need to be exponentiated to generate the value on the original scale (Bürkner, 2017, 2018).

To note, Hurdle-gamma regression has the flexibility to specify the binary and continuous parts in distinguishable ways (Hofmans, 2017). However, although little knowledge has been obtained on the different predictors for binary and continuous part specific to marital quality as outcomes, some exploration is needed. To this end, I started with estimating the same set of fixed or/and random effects for the binary and continuous parts. Then, I conducted model modification and comparisons to select the optimal models using cross-validation (CV), which is the gold standard for model comparison because it helps balance achieving a good fit for existing data, while avoiding over-fitting and hence improving generalization to future unseen data (Vehtari et al., 2017).

As I have a modest-to-large number of observations at two levels (i.e., 1608 at Level 1, and 268 at Level 2), I conducted 10-fold cross-validation according to prior studies (Wong & Yeh, 2019). The 10-fold cross-validation (a) separates the data into 10 subsets, (b) re-fits each model 10 times while holding out one subset at a time (i.e., throughout this chapter and all appendices, the subset that was held out during refitting was referred to held-out data), (c) computes prediction error of each model to the held-out subset by averaging all errors of all 10 refittings, and (d) compares the prediction errors of all models and selects the optimal one based on the expected log predictive density (ELPD) difference and the standard error (SE) of the ELPD difference (Wong & Yeh, 2019). Among a series of models, the ELPD closest to 0 indicates a best-fitted model for unseen data (Vehtari et al.,). If the ELPD difference between two models is large than 2 SEs (i.e., comparable to $|Z| > 2$, which met the criteria of statistical significance), then the one in which ELPD is closer to 0 is deemed as a notably better fit to unseen data than the other (Vehtari et al., 2017).

For model comparisons and selection, I also considered whether every two models were notably different in R^2, as the one with larger R^2 explained the training data notably better than the other. If the two models were equivalent in not only ELPD but also R^2, the model was selected based on either the theoretical guidance or (if no specific theoretical guidance existed) model parsimoniousness.

Given the research aims of the current study, I tested the models below in sequence. Table 2 displays the fixed effects of all models that I tested. For the specification of random effects in models listed in Table 2, I selected the optimal set of random effects based on 10-fold cross-validation, R^2, and model parsimoniousness (see Appendix B for details).

In Table 2, Model 1 was the selected unconditional growth model that estimated the developmental trajectories of husbands' and wives' marital quality across three waves. Model 2 was the optimal model estimating spillover and crossover effects of husbands' and wives' external stressors on the developmental trajectories of marital quality, which was selected based on 10-fold cross-validation, R^2, and theoretical guidance (see Appendix B for details).

Further, and based on Model 2, the moderating roles of personal, relational, and social network resources were tested separately, primarily given the restricted statistical power of moderating analyses (McClelland & Judd, 1993). Model 3 was specific to the moderating roles of personal resource (i.e., self-esteem). Model 4 was specific to the moderating roles of relational resource (i.e., spousal support). Model 5 was specific to the moderating roles of social network resource (i.e., relationship with parents and parents-in-law).

To note, from Model 2 to Model 5, existing studies have indicated the necessity to control for covariates listed in Table 3: cohabiting before marriage, marital length, parental status, as well as husbands' and wives' age, education, and income (Jose et al., 2010; Michel et al., 2011). To determine whether and which covariates listed in Table 3 should be included in the current study, I estimated a supplementary model with a full list of covariates (seen at

the bottom of Table 2). However, after taking into consideration the 10-fold cross-validation, R^2, and model parsimoniousness, covariates were not included in Models 2 to 5 (See Appendix C for details).

Results

Preliminary Analyses

Descriptive analyses and bivariate correlation. Table 3 displays the descriptive analyses and bivariate correlations for Study 1. As expected, high external stressors were related to low marital quality. High personal, relational, and social network resources were all related to high marital quality.

Unconditional Growth Model. The finalized unconditional growth model converged well (i.e., Model 1), and I displayed the fixed effects in Table 4. Overall, Model 1 explained 49% of the variability in the outcome. For the binary part, time did not have a notable effect for either husbands or wives. The likelihood of being in a highly satisfied relationship seemed relatively stable across the three waves.

For the continuous part, results provided strong evidence for the notable effect of time among both spouses. That is, for husbands and wives who were not in a highly satisfied relationship, the level of unhappiness and dissatisfaction gradually increased across time.

Research Question 1: Spillover and Crossover Effects of External Stressors.

The selected spillover and crossover effects model (i.e., Model 2) converged well, and I displayed the fixed effects in Table 5. Overall, Model 2 explained 51% of the variability in the outcome.

For the binary and continuous parts of the model, strong evidence was found for spillover effects of external stressors for two spouses. That is, for husbands and wives, higher levels of own external stressors were related to a lower likelihood of being in a highly satisfied relationship. Further, and among husbands and wives who were not in a highly

satisfied relationship, higher levels of own external stressors were associated with more unhappiness and dissatisfaction.

Strong evidence for crossover effects of external stressors was found in husbands' binary part only. That is, higher levels of their wives' external stressors were related to husbands' lower likelihood of being in a highly satisfied relationship.

Research Question 2: Moderating Roles of Resources.

Personal resources. The model testing the moderating roles of self-esteem (i.e., personal resources; Model 3) converged well, and I displayed the fixed effects in Table 6. Realizing that evidence for notable effects was somewhat sparse and that the model was relatively complicated, I compared Model 3 (i.e., the model testing moderating roles of self-esteem) and Model 2 (i.e., the selected spillover and crossover effects model) using the 10-fold cross-validation. I found that the two models were equivalent in terms of ELPD [i.e., -3.5 (ELPD difference)/ 11.6 (SE of the ELPD difference) = .30]. Also, Model 3 was equivalent to Model 2 on R^2. As all the fixed predictors included in Model 3 were theoretically plausible, it is warranted to keep all the fixed predictors from Model 3.

Moderating effects of self-esteem were found for wives' marital quality only. To interpret two-way interactions, I then probed simple slopes between external stressors and marital quality at low and high levels of moderators throughout this study.

Specifically, modest evidence was found for the two-way interaction between husbands' external stressors and husbands' self-esteem on the binary part of wives' marital quality. As displayed in Panel A of Figure 1, when husbands reported low self-esteem (i.e., 1 *SD* below the mean), husbands' higher external stressors related to wives' lower likelihood of being in a highly satisfied relationship (i.e., modest evidence as 89% HDI did not include 0). On the contrary, when husbands reported high self-esteem (i.e., 1 *SD* above the mean),

husbands' external stressors were not related to wives' likelihood of being in a highly satisfied relationship.

In addition, strong evidence was found for the two-way interaction between husbands' external stressors and husbands' self-esteem on the continuous part of wives' marital quality. As displayed in Panel B of Figure 1, when husbands reported low self-esteem (i.e., 1 *SD* below the mean), husbands' higher external stressors were associated with their wives' more unhappiness and dissatisfaction (i.e., modest evidence as 89% HDI did not include 0). On the contrary, when husbands reported high self-esteem (i.e., 1 *SD* above the mean), husbands' external stressors were not associated with wives' level of unhappiness and dissatisfaction.

Relational resources. The model testing the moderating roles of spousal support (i.e., relational resources; Model 4) converged well, and I displayed the fixed effects in Table 7. Similarly, I compared Model 4 (i.e., the model testing moderating roles of spousal support) and Model 2 (i.e., the selected spillover and crossover effects model) using the 10-fold cross-validation. I found that Model 4 was slightly better fitting to the held-out data than Model 2 [i.e., 11.4 (ELPD difference) / 11.6 (SE of the ELPD difference) = 1.3]. Also, Model 4 has a slightly larger R^2 than Model 2, and all the fixed predictors included in Model 4 were theoretically plausible. As such, it is warranted to keep all fixed predictors from Model 4.

Moderating effects of spousal support were found for both spouses. For husbands and specific to the continuous part of marital quality, modest evidence was found for (a) the two-way interaction between husbands' external stressors and husbands' spousal support, and (b) the two-way interaction between wives' external stressors and wives' spousal support. As seen in Panel A of Figure 2, when husbands reported low spousal support (i.e., 1 *SD* below the mean), husbands' higher external stressors were related to themselves' more unhappiness and dissatisfaction (i.e., modest evidence as 89% HDI did not include 0). On the contrary,

when husbands reported high spousal support (i.e., 1 *SD* above the mean), husbands' higher external stressors were not related to their own unhappiness and dissatisfaction (as 89% HDI included 0).

As seen in Panel B of Figure 2, either when wives reported low spousal support (i.e., 1 *SD* below the mean) or reported high spousal support (i.e., 1 *SD* above the mean), I did not obtain enough evidence (i.e., 89% HDI included 0) demonstrating the associations between wives' external stressors and husbands' level of unhappiness and dissatisfaction. However, I did see the following tendency. When wives reported low spousal support (i.e., 1 *SD* below the mean), wives' higher external stressors tend to relate to husbands' more unhappiness and dissatisfaction. When wives reported high spousal support (i.e., 1 *SD* above the mean), wives' higher external stressors tend to relate to husbands' less unhappiness and dissatisfaction.

For wives, modest evidence was found for the three-way interaction among husbands' external stressors, husbands' supposal, and time on the continuous part of marital quality. To interpret the three-way interaction, I probed the over-time developmental trajectories of wives' unhappiness and dissatisfaction at the different combinations of husbands' external stressors and husbands' spousal support.

As seen in Panel A of Figure 3, when husbands reported low spousal support (i.e., 1 *SD* below the mean), wives reported relatively stable levels of unhappiness and dissatisfaction across time regardless of husbands' external stressors. Yet, the initial levels of unhappiness and dissatisfaction seem to be lower when husbands reported lower external stressors (i.e., 1 *SD* below the mean).

The situation became complicated when husbands reported higher spousal support (i.e., 1 *SD* above the mean). Seen in Panel B of Figure 3, husbands' high external stressors (i.e., 1 *SD* above the mean) were related to wives' over-time increases (i.e., modest evidence

as 89% HDI did not include 0) in unhappiness and dissatisfaction, although the initial levels of wives' unhappiness and dissatisfaction were consistent regardless of husbands' external stressors.

Social network resources. Although fixed predictors included in the original Model 5 (displayed in the last row of Table 2) fit the theory, I generated a simplified Model 5 by removing the highest-order interactive terms (i.e., the three-way interactions in the continuous parts of husbands' or wives' marital quality). The rationale was the following. The continuous parts in the original Model 5 did not converge well even after I adjusted the number of iterations to 4000 (burnin = 1000) and also increased the treedepth according to the guideline here (see https://mc-stan.org/misc/warnings.html#maximum-treedepth-exceeded for details). Also, I compared the original Model 5 (i.e., the original model testing moderating roles of relationships with parents and parents-in-law) to Model 2 (i.e., selected spillover and crossover effects model) using the 10-fold cross-validation. I found that Model 5 was marginally worse fitting on held-out data than Model 2 [-21.0 (ELPD difference) / 12.2 (SE of the ELPD difference) = 1.7; which did not meet but was close to the threshold of 2 SEs].

Further, the simplified Model 5 (i.e., the simplified model testing the moderating roles of relationships with parents and parents-in-law) converged well. Overall, the simplified Model 5 explained 52% of the variability in the outcome. I displayed the fixed effects in Table 8. According to the 10-fold cross-validation, the simplified Model 5 and Model 2 were equivalent on ELPD [-0.8 (ELPD difference) / 10.2 (SE of the ELPD difference) = 0.1]. Also, the simplified Model 5 was better fitting on held-out data than Model 5 [20.2 (ELPD difference) / 10.6 (SE of the ELPD difference) = 1.9; which did not meet but was close to the threshold of 2 SEs]. In sum, the simplified Model 5 was equivalent to Model 2 on R^2 and contained fixed predictors that were all theoretically plausible. For these reasons, I retained

the simplified Model 5 as the model testing the moderating roles of relationships with parents and parents-in-law.

Moderating effects of relationships with parents and parents-in-law were found for husbands' continuous part and wives' binary part of marital quality. Specific to husbands' continuous part, modest evidence was found for the two-way interaction between husbands' external stressors and husbands' relationships with parents/parents-in-law. Seen in Figure 4, when husbands reported closer relationships with parents and parents-in-law (i.e., 1 *SD* above the mean), husbands' higher external stressors related to themselves' more unhappiness and dissatisfaction (i.e., modest evidence as 89% HDI did not include 0). When husbands reported less close relationships with parents and parents-in-law (i.e., 1 *SD* below the mean), husbands' external stressors became unrelated to themselves' unhappiness and dissatisfaction (i.e., 89% HDI included 0).

Specific to wives' binary part, modest evidence was found for the two-way interaction between wives' external stressors and wives' relationships with parents/parents-in-law on the binary part of wives' marital quality and the two-way interaction between husbands' external stressors and husbands' relationships with parents/parents-in-law. As displayed in Panel A of Figure 5, when wives reported closer relationships with parents and parents-in-law (i.e., 1 *SD* above the mean), wives' external stressors seemed unrelated to themselves' likelihood of being in highly satisfied relationships (as 89% HDI included 0). When wives reported less close in relationships with parents and parents-in-law (i.e., 1 *SD* below the mean), wives' higher external stressors were associated with themselves' lower likelihood of being in highly satisfied relationships (i.e., modest evidence as 89% HDI did not include 0).

However, and seen in Panel B of Figure 5, when husbands reported closer relationships with parents and parents-in-law (i.e., 1 *SD* above the mean), husbands' higher external stressors were associated with wives' lower likelihood of being in highly satisfied

relationships (i.e., modest evidence as 89% HDI did not include 0). On the contrary, when husbands reported less close relationships with parents and parents-in-law (i.e., 1 *SD* below the mean), husbands' external stressors seemed unrelated to wives' likelihood of being in highly satisfied relationships (i.e., 89% HDI included 0).

Discussion

Integrating the systemic transactional model with the stress resistance process, I went beyond the well-documented moderating roles of relational resources and took the very initial steps to examine how personal and social network resources may also buffer associations from external stressors to relationship quality. Moreover, this study was conducted among Chinese heterosexual couples in the first several years of marriage, a still understudied non-Western sample population who has experienced drastic changes in recent several decades in Chinese society. When proposing whether and which resources at personal, relational, and social network levels buffer associations from external stressors to relationship quality among the current sample, I considered not only the social cultural contexts but also each individual, couple, and family's experience that may have been reshaped by the social changes. Findings in the present study are below.

Findings that Support Theory

Generally speaking, results in the present study support the theoretical framework (i.e., a combination of the systematic transactional model and the stress resistance process) and empirical studies. To begin with, the systematic transactional model, the stress resistance process, and the existing research all indicate that spousal support is critical to buffering the detrimental effects of external stressors. Per the stress resistance process, individuals rely on supportive others (including spouses) when coping with external stressors (Hobfoll, 1985, 1989). Per the systematic transactional model, one partner needs to support the other when the other has experienced external stressors, otherwise the unresolved stressors will disturb

the well-being of the relationship and impede relational outcomes for both partners (Bodenmann, 1997; Bodenmann et al., 2016). Similar to these theories, spousal support (i.e., the support one member received from the partner) buffered both stressors spillover and crossover in this study (i.e., the detrimental effects of one's external stressors to own and the partner's relational outcome, respectively; Neff & Karney, 2007; Lavner et al., 2012).

As an extension to the systematic transactional model and consistent with the stress resistance process, I found evidence suggesting that self-esteem (i.e., personal resources) and relationships with parents and parents-in-law (i.e., social network resources) also buffer the detrimental effects of external stressors on relational outcomes. As indicated in Chapter 1 and the literature review section of this chapter, Hobfoll (1985, 1989) argues that individuals use all resources that are available to them when handling external stressors. Interestingly, and when examining stressors and resources in couple relationships, less attention has been paid to personal and social network resources than to relational resources, although literature in other fields (i.e., those focusing on associations from stressors to personal outcomes; e.g. depression and emotion distress in Anderson et al., 2015, Donnellan et al., 2009; job satisfaction in Callea et al., 2017) has demonstrated the buffering roles of personal and social network resources. By demonstrating the salient yet previously underestimated roles of resources other than those at relational level, the present study highlights two additional patterns of couple relationships. First, whereas two partners need to be mutually reliant in stressful conditions (Bodenmann, 1997, Bodenmann et al., 2016), it is also crucial for desirable relational outcomes that each partner can be independent and autonomous (Lampis et al., 2019). As such, one partner's capability for successfully handling the stressors with adequate personal resources also matters for marital quality. Second, each couple is embedded in a social network, and the two partners are not facing stressors alone (Chong et al., 2017; Morr Serewicz, & Hosmer, 2011; Sprecher, 2011). Moreover, and specific to

parents and parents-in-law as the salient component in the social network (Danielsbacka et al., 2015; Vanhoutteghem et al., 2014), parents and parents-in-law often regard couples' external stressors as manageable and may provide especially frequent support and effective solution (Bucx et al., 2012; Pillemer & Suitor, 2002). Thus, as I found, relationships with parents and parents-in-law also buffer the detrimental effects of external stressors.

Findings Explained by Social Cultural Background and Historical Periods

In addition to the above results that are expected and consistent with theory (i.e., systemic transactional model with the stress resistance process), *several nuanced, unexpected findings emerge,* which are somewhat surprising at the first glance and of which I consider additional context to explain these findings. As stated in Chapter 1, findings and conclusions derived from well-studied sample populations may not be applicable to other still understudied and underrepresented populations (e.g., couples in non-Western culture; Fincham & Beach, 2010; Karney & Bradbury, 2020). Further, caution is needed when researchers generalize findings and conclusions derived from earlier time periods to later one (Greenfield, 2017). Collectively, and as elaborated below, these nuanced findings highlight the necessity of considering couples in their respective social cultural background and historical periods.

Findings explained by social cultural background. The first three nuanced, unexpected findings may be explained by the social cultural context in China. Specifically, and in Chinese marriage, husbands' provider abilities (e.g., high income, successful career, being confident and ambitious, problem solving skills) and wives' housekeeper roles (e.g., assisting with husbands' career, handing housework, maintaining relationships with kin) are highly emphasized, even in the modern society and especially in comparison to Western couples (Chen et al., 2009; Ji et al., 2017). As the consequence, whether husbands are equipped with resources to handle external stressors including those related to issues such as

housing, their career, or finances (i.e., an indicator for husbands' provider ability) should matter more to both spouses than whether wives are equipped with resources to do so. That is the reason why more moderating effects were found for husbands' resources in associations from external stressors to relational outcomes than for wives' resources (i.e., 6 for husbands versus 2 for wives; *the first nuanced, unexpected finding*).

Next, I will consider the two nuanced, unexpected findings together. The *second nuanced, unexpected finding* is specific to self-esteem. I have indicated earlier in this chapter that self-esteem should be an increasingly important, personal resource that helps Chinese partners cope with external stressors (Ji, 2015a; Steel et al., 2020). However, in this study, only husbands' (not wives') self-esteem buffers the detrimental effects of external stressors. The *third nuanced, unexpected finding* is specific to relationships with parents and parents-in-law. I argued in the literature review of the current chapter that the geographical proximity and the high interdependence between Chinese couples and their extended family should render relationships with parents and parents-in-law a helpful resource in Chinese marriage. Yet, opposite patterns emerged: Wives' relationships with parents and parents-in-law attenuate the detrimental effects of external stressors, yet husbands' relationships with parents and parents-in-law strengthen the detrimental effects of external stressors.

To explain these two nuanced, unexpected findings, I return to the emphasis on husbands' provider abilities and wives' housekeeper roles in Chinses social culture. Specifically, self-esteem suggests the confidence in individuals' own values and the capabilities to engage in proper coping strategies (Dumont & Provost, 1999; Erol, & Orth, 2013), which may therefore indicate the high provider abilities that are highly valued for husbands (not for wives) in Chinese marriages. On the contrary, maintaining relationships with parents and parents-in-law falls into the emphasis of women's housekeeper roles (Chen et al., 2009). For husbands, relying on relationships with parents and parents-in-law as

resources in stressful conditions may suggest the incompetence to solve problems and the failure to be a provider in the family (Liu, 2019).

Finding explained by historical periods. The *fourth nuanced, unexpected finding* is specific to spousal support. I anticipated some uncertainty about whether spousal support would be a beneficial relational resource for the current sample (detailed in the literature review section in this chapter) and found relatively complex results in the present study. That is, husbands' relational resources buffered the detrimental effects from husbands' external stressors to wives' initial levels of marital quality. Yet, husbands' relational resources also strengthened associations from husbands' external stressors to wives' over-time increases in dissatisfaction and unhappiness. Taken together, these two findings suggest the opposite roles of husbands' relational resources for their wives' marital quality: beneficial in the short term but then detrimental in the long term.

Such finding can be explained such that Chinese couples' living experiences have been complicated by the co-existence of the long-lasting traditions and recent, drastic transitions. In particular, with the Chinese government investing efforts to challenge traditional gender norms since 1949, Chinese women have actively participated in labor and enacted the provider role as men did (Ji et al., 2017). Meanwhile, it still expected for women to be the main housekeeper (Ji et al., 2017). As the consequence for wives, providing support for husbands may engender a feeling of exhaustion and deprivation, as wives in contemporary China (including those in the present study) often shoulder multiple burdens such as similar levels of external stressors to husbands (paired $t = -.955$, $p > .10$ in the present study), most of housework, and the expectation to help their husbands (Cao et al., 2019b; Chen et al., 2009; Ji et al., 2017; Li et al., 2020a). In the short term, support provided by wives can prevent undesired situations such that husbands brought unresolved external stressors home and expressed negative emotion in their marital lives (as indicated in studies

related to how external stressors crossover; Bodenmann et al., 2007; Neff, & Karney, 2017). However, in the long term, the feeling of exhaustion and deprivation may persist, resulting in the over-time accumulation of wives' dissatisfaction and distress in marriage (Li et al., 2020b; Maier & Priest, 2016).

Limitations and Future Research Directions

Several limitations and future research directions should be noted. First, couples in the present study lived in economically developed Chinese urban areas and had relatively higher levels of education and income than the broader population in both the data collection area (i.e., Beijing) and across China in 2011, the participants recruiting year (for information of the broader population in Beijing in 2011, see Beijing Bureau of Statistics, 2011; for information of the broader population across China in 2011, see National Bureau of Statistics of China, 2012). In comparison to those living in economically underdeveloped areas with relatively low levels of education and income, the two partners in the present study should experience fewer stressors and possess more resources. Therefore, generalizing our findings to the other groups should be made with caution, and future studies with more diverse samples are still pressing.

Second, the data in the present study were collected exclusively via self-report survey method, which may bring in the shared method/informant variance biases and social desirability biases. Future studies may benefit from using multiple-method, multiple-informant designs. For example, the daily diary method might be particularly appropriate for research in this field, given that daily diary method can (a) reduce retrospective biases and (b) obtain a more accurate assessment of the average levels of key study constructs over a period of time (e.g., marital quality in the present study) (Akçabozan et al., 2017).

Third, evidence for moderating effects of resources were mostly demonstrated by 89% HDI and therefore modest (versus demonstrated by 95% HDI and therefore strong),

which can be explained by the following reasons. For a statistical consideration, I aimed to detected two-way (i.e., external stressors × resources) and even three-way (i.e., external stressors × resources × time) interactions, which are typically small in effect sizes and therefore difficult to detect (for similar arguments, see Marsh et al., 2013). For a theoretical consideration, I examined how external stressors and resources at baseline interacted in associations with marital quality across three waves. Yet, external stressors and resources can both change across time (Hobfoll et al., 2018; Ritter et al., 2016; Li et al., 2019a). Given the dynamic nature of external stressors and resources, their initial levels may not be able to sufficiently predict marital quality in the next several years. In the future, researchers may assess external stressors and multiple resources at different time points and then test whether the over-time changes in these two sets of variables can be more predictive for marital quality than their initial levels (for similar analytic strategies, see Li et al., 2019a, 2019b).

Fourth, and as a common situation in studies that use marital quality as outcomes (including the present one), the level of outcome is generally at the very high end and the distribution of outcome is highly skewed (Ganong et al., 2019; O'Connor et al., 2018). Such skewness issues severely violate the assumption in null hypothesis significance testing and therefore biased the estimation of predictive pathways to marital quality (for a review, see Tijmstra, 2018). To adjust such bias and therefore increase the credibility for the results in the present study, I have taken the very initial steps in the field of couple and family relationships to handle skewness with hurdle regression and Bayesian estimation. Interestingly, and as a highlight for the flexibility of hurdle-regression analyses (Hofmans, 2017), different results emerged for the binary part (i.e., predicting whether participants were in presumably highly satisfying relationships) versus the continuous part (i.e., predicting among those who were not in highly satisfied relationships, why some participants reported more distress than others).

As it is the first time to use hurdle regression in the field of couple and family relationships, no existing theories or studies were available for the explanation of the different results I obtained for the binary and continuous parts. However, the novelty of results does not mean the lack of necessity of continued exploration and replication. For example, the estimation of the growth curve in the binary and continuous parts is consistent with prior studies identifying diversity in the developmental trajectories in marital quality across time (Li et al., 2019a). That is, those who started with higher happiness and satisfaction tend to experience few changes across time, whereas those who started with lower happiness and satisfaction can become more distressed across time (Britt et al., 2012; Williamson & Lavner, 2020). More importantly, the different predictive effects on the binary part and continuous parts of marital quality indicate another possibility for researchers and practitioners. That is, the way to keep the desirable relational outcomes among those in very happy and satisfied relationships is likely different from the way to prohibit further decline in marital quality among those who already experienced somewhat unhappiness and dissatisfaction.

Conclusions and Implications

The present study demonstrated that, in addition to relational resources, personal and social network resources are also effective in buffering external stressors spillover and crossover in Chinese marriage. Yet, buffering effects of personal and social network resources differ between husbands and wives, likely due to the emphasis on husbands' provider abilities and wives' housekeeper roles in Chinese marriages. Also, likely due to the recent social transitions in Chinese society, the long-term and short-term effects of husbands' relational resources on wives' relational outcomes were found to be in opposite directions (i.e., beneficial in the short term but detrimental in the long term).

Accordingly, the following suggestions can be proposed for researchers and practitioners. First, when working with couples who are experiencing external stressors, researchers and practitioners need to simultaneously consider available resources at multiple levels for both husbands and wives. Second, researchers and practitioners need to consider the different expectations for husbands and wives in a given social cultural context, as these different expectations may determine whether each set of resource works for husbands or wives. Third, researchers and practitioners should note that, whereas spousal support is a crucial relational resource in stressful conditions, it can be burdensome for support providers who shoulder multiple responsibilities inside and outside of family lives (i.e., more specifically, wives who are simultaneously handling external stressors and enacting the housekeeper roles in the transitional period of Chinese society). Efforts are needed by researchers and practitioners to help determine potential solutions that promote spousal support for both spouses without overwhelming either of them.

CHAPTER III. MINORITY STRESSORS TO INTIMATE PARTNER VIOLENCE AMONG SAME-SEX COUPLES: COMMITMENT AS A MODERATOR AND MEDIATOR

(Paper to be submitted to *Sex Roles* or *Journal of Homosexuality* or *Archives of Sexual Behaviors*)

Introduction

As stated in Chapter 1, intimate partner violence (hereafter referred to as IPV) includes different forms of psychologically (e.g., calling the partner's name and demeaning the partner) and physically (e.g., pushing, grabbing, and slapping the partner) aggressive behaviors between partners in a close relationship (Hardesty & Ogolsky, 2020; Heyman et al., 2010). IPV in same-sex couple relationships merits particular attention for several reasons. First, IPV often results in severe consequences for adults who perpetrated or victimized IPV as well as for children who witnessed IPV between parents (e.g., posttraumatic stress disorder for adult victims; anxiety disorder for child witness; for reviews, see Crane et al., 2014; Laskey et al., 2019; Ravi & Tonui, 2019). Second, about 1/3 of adults in the United States have experienced IPV at least once during their lifetime, and the prevalence of IPV among *same-sex population* seems even higher (i.e., a lifetime victimization prevalence of about 40%; Badenes-Ribera et al., 2015; Giulia, & Cinzia, 2018; Messinger, 2017; Smith et al., 2018). With about 2 million adults and 191,000 children in the United States living in families led by same-sex populations (United States Census Bureau, 2017), IPV in same-sex relationships has the potential to impact the well-being of a relatively large number of individuals.

To conduct prevention and intervention on this severe and widespread issue of IPV in same-sex relationships, efforts are needed to obtain a better understanding on why same-sex IPV occurred (for a similar argument, see Capaldi, & Langhinrichsen-Rohling, 2012). To date, researchers have identified a series of predictors for IPV in heterosexual relationships, which are also applicable for predicting same-sex IPV given the similarity in relationship maintenance between same-sex and heterosexual relationships (Capaldi et al., 2012; Hellemans et al., 2015). Yet, the predictors shared by heterosexual and same-sex couples cannot adequately explain the excess of IPV in the same-sex community. To this end,

researchers have extended the understanding of predictors for same-sex IPV by documenting that sexual minority stressors (i.e., stressors that are uniquely experienced by same-sex couples; Meyer, 2003a, 2007) increase the risk of IPV (for systematic reviews; see Badenes-Ribera et al., 2015; Barrett, & St. Pierre, 2013; Decker et al., 2018; Edwards et al., 2015). Despite these reviews, research aiming to examine associations between sexual minority stressors and same-sex IPV is still limited in the following ways.

First, samples in prior research were often restricted to characteristics such as geographical locations (i.e., from a single or just a few U.S. states), union types (i.e., primarily or exclusively cohabitating couples without legal documentation such as power of attorney documentation or civil unions registration), race/ethnicity (i.e., predominantly or exclusively non-Hispanic White), and socioeconomic status (e.g., primarily or exclusively middle-class). Couples in these aforementioned samples may represent a narrow range of stressors and also are relatively capable of coping with stressors, which then result in an underestimation of detrimental effects of stressors (Karney & Bradbury, 2005, 2020).

Second, studies on this topic have been based primarily on data from one partner in a couple (for an exception, see Li et al., in press). However, spillover and crossover effects exist in the associations from sexual minority stressors and relational outcomes (LeBlanc et al., 2015; Totenhagen et al., 2017). As existing studies examining associations between Partner A's minority stressors to Partner B's IPV perpetration (i.e., the crossover effect) often failed to control for the Partner' B own minority stressors, I still need to clarify whether the crossover effects exist after controlling for the spillover effects from partner' Bs own minority stressors to partner's B IPV perpetration (for similar argument, see Buck & Neff, 2012; Neff & Karney, 2007).

Third, and more importantly, studies in this field have focused primarily on *simple, generic* links between minority stressors and same-sex IPV. Yet, and as stated Chapter 1,

external stressors (including sexual minority stressors) are inevitable. To obtain the guideline for *how to attenuate* the negative consequences of sexual minority stressors and *where to intervene*, researchers need examine the potential *moderators* and *mediators*, respectively, in the associations between sexual minority stressors and IPV (for similar arguments, see Badenes-Ribera et al., 2017; Edwards & Sylaska, 2013; Finneran & Stephenson, 2013; Longobardi & Badenes-Ribera, 2017).

To fulfill aforementioned gaps, the present study integrates the following two theories as guidelines: the systemic transactional model (Bodenmann, 1997; Bodenmann et al., 2016) and the stress resistance process in conservation of resource within the conservation of resource theory (hereafter referred to stress resistance process; Hobfoll, 1985, 1989). I used dyadic data from a racially, geographically, and socioeconomically diverse sample of same-sex couples to (a) first examine actor and partner associations between sexual minority stressors and same-sex IPV (Research question 1), and then (b) test potential moderators and mediators in these actor and partner associations (Research question 2).

In addition to the aforementioned two primary research questions, I will conduct a set of supplementary analyses to test the potential difference between female and male dyads in responding to the sexual minority stressors (supplementary research question). I acknowledged that this set of analyses was relatively exploratory in nature, as a much smaller number of studies in the field of sexual minority stressors and relational outcomes has simultaneously included participants from both the male and female dyads (in comparison to the majority of studies including exclusively participants from either male or female dyads; for a meta-analysis, see Cao et al., 2017). However, preliminary evidence has been found for a more detrimental effects of sexual minority stressors among those in same-sex female dyads than among those in same-sex male dyads (see Cao et al., 2017). In addition, as theoreticians have argued, the experience of minority stressors as well as the access to

resources can largely differ between male and female, and it is therefore necessary to detect the different experiences of male and female dyads within the community of same-sex couples (Ferguson et al., 2014). Thus, and given the mix of male and female dyads in the current sample, the supplementary research question is still worthy of pursuing.

Literature Review

Theoretical Frameworks

For the theoretical perspectives that guide the examination of actor and partner associations between sexual minority stressors and same-sex IPV, the systemic transactional model and the stress resistance process both suggest the detrimental consequences of external stressors (i.e., stressors that originate outside of close relationships). Moreover, the systemic transactional model further indicates that the interdependent nature of couple relationships renders it possible that external stressors experienced by one partner should affect both spouses in the couple relationship (Bodenmann, 1997; Bodenmann et al., 2016).

Specific to the current study, sexual minority stressors are regarded as external stressors, as sexual minority stressors are caused by the long-lasting heteronormativity in the society (i.e., of which an assumption is included that sexual attraction between two opposite, biological sex is the only type of natural and acceptable relationships; Kitzinger, 2005). IPV is regarded as a relational outcome given that IPV encompasses between-partner discord and often causes negative consequences for both spouses in the relationship (also seen in Chapter 1; Kopystynska & Beck, 2018). As indicated in Chapter 1, individuals often experience more irritants and higher physiological arousal in stressful conditions, and external stressors should therefore strengthen their own tendency toward perpetrating IPV (Finkel, 2007). Moreover, and in line with the systemic transactional model, an individual's sexual minority stressors should predict higher levels of partner's IPV perpetration.

With respect to theoretical arguments that guide the examination of potential mediators and moderators in associations from external stressors to relational outcomes, the systemic transactional model and stress resistance process have both highlighted the salient roles of resources (especially relational resources; Bodenmann, 1997; Bodenmann et al., 2016; Hobfoll, 1985, 1989). Specifically, relational resources are those shared by two partners to help each other cope with external stressors (Bodenmann, 1997; Bodenmann et al., 2016). As noted in Chapters 1 and 2, the two partners in a romantic relationship often experience external stressors as a unit, which renders relational resources as the most central or salient one for stressors and coping (Bodenmann, 1997; Bodenmann et al., 2016). In this study, I conceptualize commitment as a relational resource, primarily because high commitment indicates the tendency to persist in a relationship and to promote cooperation, companionship, and support between two relational partners (Afifi et al., 2016; Hobfoll, 2001; Rusbult et al., 2001).

Moreover, whereas systemic transactional model and stress resistance process both suggest that resources should buffer the negative effects of external stressors (i.e., resource as moderator), theoreticians who proposed the systemic transactional model later realized another possibility (Hobfoll, 1989; Bodenmann, 1997; Bodenmann et al., 2016; Randall & Bodenmann, 2009). That is, persistent and constant external stressors will continue taxing resources from couples, and the depleted resources in turn results in negative relational outcomes (i.e., resource as the mediator, a hypothesis indicated in Chapter 1 as well; Randall & Bodenmann, 2009). Accordingly, the moderating and mediating roles of commitment (i.e., a relational resource) may both apply in associations from sexual minority stressors (i.e., external stressors) to IPV (i.e., relational outcomes). It is therefore theoretically warranted to regard hypotheses on moderating and mediating roles of commitment as mutually complementary.

Empirical Studies

Sexual minority stressors and IPV among same-sex couples. Sexual minority stressors can range from distal ones (i.e., objective stressors that do not depend on an individual's perceptions or appraisals; discrimination) to proximal ones (i.e., the internalization of negative societal attitudes toward being a member of a sexual minority group; internalized homophobia) (Meyer, 2003a). To date, a growing yet still slim body of studies has identified positive actor and partner associations from discrimination and internalized homophobia to psychological and physical IPV perpetration in same-sex couple relationships (for reviews, Baker et al., 2013; Decker et al., 2018; Kimmes et al., 2017).

The findings relevant to internalized homophobia (i.e., proximal minority stressors) and same-sex IPV have been relatively consistent and patterned. In comparison, the findings relevant to discrimination (i.e., distal minority stressors) and same-sex IPV are mixed (Decker et al., 2018; Kimmes et al., 2017). Further, significant actor and partner effects between discrimination and IPV perpetration only emerged in a small number of studies that were based on ethnically and socio-economically diverse samples, which echoes my earlier statement (in the introduction of the current chapter) that detrimental effects of sexual minority stressors have been underestimated in most studies (e.g., Finneran & Stephenson, 2014; Martin-Storey & Fromme, 2017; Sutter et al., 2019).

Commitment as a potential moderator and mediator. Preliminary evidence based on heterosexual couples has found that one individual's low commitment is one of the most important triggers for IPV perpetrated by individuals themselves and by their spouses (Capaldi et al., 2012; Flynn & Graham, 2010; Manning et al., 2018). Such findings were somewhat consistent with those of a qualitative study in which participants who perpetrated IPV in same-sex relationships were interviewed: About half of participants attributed IPV perpetration to their partner' decreased commitment (Stanley et al., 2006). The

aforementioned research highlights commitment as an important construct to consider in associations with IPV.

With respect to the two complementary hypotheses of the moderating and mediating roles played by commitment in associations from sexual minority stressors and IPV, supportive evidence has been found for both of them. Starting with evidence supporting the *potential moderating role of commitment,* few studies have empirically tested commitment as a moderator that buffers negative effects of sexual minority stressors (i.e., the external stressors uniquely experienced by sexual minority population) and relational outcomes. Yet, some researchers have demonstrated the buffering role of commitment in associations between other types of external stressors (e.g., involuntary unemployment) and relational well-being in heterosexual couple relationships (Beck, 2016; Hearn et al., 2017). The moderating hypothesis of commitment seems plausible presumably given the following situation. Compared to those in less committed relationships, partners in a highly committed relationship show more empathy for each other's feelings in stressful situations and also are more likely to help each other find solutions to deal with the stressors (Beck, 2016; Randall & Bodenmann, 2017). These findings suggest that as external stressors are effectively handled within a highly committed couple relationship, and the negative effects of external stressors are therefore attenuated.

With respect to evidence supporting the *potential mediating roles of commitment,* a slim body of existing studies has suggested that sexual minority stressors were negatively related to commitment. To this end, the mediating hypothesis (i.e., high minority stressors → low commitment → high IPV) seems plausible. For example, high internalized homophobia (i.e., proximal external stressors) is associated with low commitment, primarily because those with high internalized homophobia underestimate the extent to which the same-sex relationship is worthy of investing (Greene & Britton, 2015). Moreover, experiencing

discrimination (i.e., distal sexual minority stressors) also engendered same-sex partners' doubts on whether they should continue in the already devalued same-sex relationships (Barrantes et al., 2017; Frost & Meyer, 2009; Mohr & Daly, 2008). Further, a meta-analysis with seven studies identified a significant negative association between discrimination and commitment across all sexual minority populations including same-sex couples (Doyle & Molix, 2015).

Same-Sex Couples in A Transitional Period

Specific to same-sex couples in the US, the national legalization of same-sex marriage occurred in 2014-2015. I bring up this transitional period to provide a context to understand better elucidate the associations among sexual minority stressors, commitment, and same-sex IPV. As connected to the study variables in this paper, internalized homophobia reflects same-sex individuals' direction of negative social attitudes toward themselves, which often leads to a devaluation of the self as well as negative self-regard (Cao et al., 2017; Doyle & Molix, 2015; Meyer & Dean, 1998). Researchers have argued that internalized homophobia (i.e., proximal minority stressors) are relatively enduring stressors, because internalized homophobia relegates individuals to situations where they keep worrying about others' negative evaluations and reactions against individuals in same-sex relationships (Totenhagen et al., 2018). Further, same-sex couples frequently encounter discrimination (i.e., distal minority stressors) on a daily basis (Platt & Lenzen, 2013).

However, the public support and acceptance of the LGBTQ population has increased since the Supreme Court's rules in *Obergefell v. Hodges* in 2015 (Kazyak & Stange, 2018). Discrimination against same-sex couples, albeit not fully resolved, has been relieved (Twenge & Blake, in press). Further, reports of internalized homophobia may also decline, as same-sex marriage legalization promotes same-sex partners' feeling of being valued, equal, and worthy of rights (Drabble et al., in press; Kennedy & Dalla, 2020). As same-sex couples

may experience less sexual minority stressors than they did before the same-sex marriage legalization in the United States, couples should be able to replenish their resources during the less stressful periods and then use those accumulated resources to attenuate the detrimental effects of future stressors (Karney et al., 2005). This is the moderating hypothesis.

Meanwhile, the national legalization of same-sex marriage has also engendered pushback against same-sex couples, at least at the time when the campaign to legalize same-sex marriage was ongoing (Paternotte, 2015). For example, during the campaign to legalize same-sex marriage and from those who opposed the campaign, opposition was expressed via discourse that those wanting same-sex marriage were "dangerous" or "deviant," as well as with statements that same-sex marriage legalization would threaten the rights of other Americans (Mello, 2015, p. 2). Same-sex couples have also been exposed to anti same-sex marriage messages from neighborhood and social media reports on a daily basis (Frost & Fingerhut, 2016). Thus, sexual minority stressors during this transitional period (i.e., 2014-2015) may still be relatively persistent and constant in the daily life of same-sex individuals, thereby depleting resources and resulting in relationship problems including IPV (high minority stressors → low commitment → high IPV). This is why mediating hypothesis may also be the case.

The Present Study

Collectively, the present study was based on dyadic data collected from 144 same-sex couples in the United States and during 2014 and 2015 (i.e., when the national debate for the 2015 legalization of same-sex marriage was ongoing). I examined (a) actor and partner associations between sexual minority stressors and IPV perpetration (Research question 1), and (b) whether commitment moderates (Panel A in Figure 6) and/or mediates (Panel B in Figure 6) these actor and partner associations (Research question 2). As stated in the

introduction of the current chapter, testing complementary hypotheses for moderating and mediating roles of commitment helps to (a) go beyond the current examination of simple, generic link between sexual minority stressors to same-sex IPV, and (b) provide a guideline for *how to attenuate* the negative consequences of sexual minority stressors and *where to intervene.* In addition, the examination of the supplementary research question (i.e., gender difference in responding to sexual minority stressors) can further extend the knowledge on the diversity inherent in experiences of the sexual minority population (for similar arguments, see Cao et al., 2017; Ferguson et al., 2014).

The examination of my research questions has additional theoretical contributions. In particular, I included both distal and proximal aspects of sexual minority stressors (i.e., discrimination and internalized homophobia) in a single model as predictors for IPV. As such, findings from the current study can provide a better understanding on the relative contributions of two different aspects of sexual minority stressors in associations with relational outcomes such as IPV (for similar argument, see Cao et al., 2017).

Method

Participants and Procedures

Data in the current sample were derived from a larger project examining the well-being of families led by sexual minority couples. The data in the larger project have been published before (citation blinded for peer-review process), yet none of these publications examined the potential moderating or mediating roles of commitment in associations from the distal and proximal sexual minority stressors to IPV perpetration. In 2014 and 2015, couples were recruited through online advertisements on Craigslist and Facebook as well as snowballing that were targeted at all 50 states in the United States. To be eligible, couples had to be (a) in a cohabiting romantic relationship with a same-sex partner or in a cohabiting relationship in which at least one partner's identification was transgender or gender non-

conforming; and (b) above the age of 18 years. Although researchers encouraged both partners in the relationship to participate in the study, this was not a mandatory requirement, because the larger project examined not only the couple and family well-being among the sexual minority population but also personal well-being for those in LGBTQ relationships. If only one partner within a relationship agreed to participate, researchers held him/her in the study and obtained consent from himself/herself only. When both partners agreed to participate, researchers included two partners in the study and obtained consent from *each* of them. Ultimately, participants from 294 households (i.e., 212 couples and 82 individuals) living in 48 states across the United States and also the District of Columbia participated in the project.

Procedures of this research project were approved by its home university institutional review board. Data were collected via Qualtrics, as it was flexible and economical to collect data from widely dispersed areas. To each participant, research assistants sent a secure email that contained a brief instruction, a unique ID number, and an individual link to the online survey. The ID number was a nine-digit study ID that research assistants created in advance. For the two partners in the same relationship, the first eight digits were identical so that researchers can pair them, and the last digit was randomly assigned as 0 for one partner and 1 for the other. The individual link to the online survey directed participants to a secure Qualtrics page on which they were required to independently (a) enter in the nine-digit ID number, (b) sign the online consent form, and (c) complete a series of online questionnaires. Upon the completion of the survey, research assistants emailed each participant a $10 Amazon e-gift as compensation within one week.

As I focused on the actor and partner associations from sexual minority stressors to IPV in same-sex relationships, I excluded data from couples (a) involving transgender and gender non-conforming partners, and (b) in which only one partner responded to the survey.

Ultimately, the present study included 288 partners in 144 same-sex couples. I conducted a multivariate analysis on key study constructs and demographic variables to examine the potential differences between the 288 partners in the current the study and those from couples in which only one partner responded to the survey. One small-sized difference emerged. In comparison to those in couples in which only one responded to the survey, partners in the present study reported less frequent physical IPV perpetration [$M_{\text{included}} = 1.31$ versus $M_{\text{not included}} = .54$; $F = 3.87$, adjusted $p = .050$ (two-tailed level); partial $\eta^2 = .015$].

For the 288 partners, the mean of ages was 34.24 years old ($SD = 9.90$), and the mode of education was "some college but without degree." For 144 couples, the mean relationship length was 5.24 years ($SD = 5.17$). For sex, 75.7% were same-sex female dyads. For income status, 32.0% of couples were in low-income status (i.e., income-to-needs ratio <= 2, based on data from Census Bureau of U.S. https://www.census.gov/hhes/www/poverty/data/threshld/). For parental status, 62.5% of couples had no child. For union status, 45.8% of couples were legally married or at least in a registered domestic partnership or civil unions. For race/ethnicity, 29.6% of couples involved at least one partner of racial/ethnic minority. For state-level sociocultural climate, 41.0% of couples were living in socio-culturally liberal states [i.e., states that fell in the lowest third of percent voting republican (see http://library.cqpress.com/elections/) and were early adopters (i.e., before Oct. 2014) of same-sex marriage laws (see http://www.ncsl.org)].

Measures

Internalized homophobia. A modified version of the Lesbian Internalized Homophobia Scale (LIHS; Szymanski & Chung, 2001) was used to assess IHP perceived by same-sex partners. The LIHS was developed originally among females in same-sex relationships, but prior studies have indicated relatively high levels of reliability (i.e., Cronbach's $\alpha = .90$) and criterion validity (i.e., middle-sized positive correlations with

substance abuse) of LIHS across LGBTQ+ populations (Amadio, 2006; Amadio & Chung, 2004). In the larger project, all the items were revised to assess internalized homophobia for all lesbian/gay/trans* individuals (i.e., using “lesbian/gay/trans” rather than “lesbian” in each item statement). An example item of the modified scale was " *I dislike myself for being attracted to other women/men/trans**." On each item, participants were asked to indicate their agreement with statements on a 7-point Likert scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). After reversing scores for thirteen negative/inverse items, I followed procedures in existing studies and calculated the mean scores of all the items (Morandini et al., 2015; Szymansk & Kashubeck-West, 2008). Higher scores indicated higher levels of IHP. Cronbach's α in the present study was .91.

Discrimination. The Workplace Heterosexist Experiences Questionnaire (WHEQ; Waldo, 1999) was used to assess discrimination in daily life. The WHEQ was a widely used measure of which the reliability and validity have been well established among the LGBTQ+ population (for a review, see Morrison et al., 2016). The original version of WHEQ contained 22 items, and 4 items were removed due to consideration of content validity. Each of the 18 items described a specific event involving heterosexist discrimination (e.g., “Overheard offensive jokes about lesbians, gay men, bisexual, or trans* individuals” “Been ignored in your place of work because you are gay/lesbian/bisexual/trans*”).

To note, WHEQ was originally developed to assess the discrimination in the workplace. Yet, in the modified version, the revised items reflected the daily experience of discrimination in different contexts (e.g., "seen homophobic literature or materials in your place or work, neighborhood, or community" in the modified version). On each item, participants indicated how often this event occurred during the last 12 months on a 5-point Likert scale ranging from 0 (*Never*) to 4 (*Most of the time*). Mean scores were calculated and

used. Higher scores indicated more heterosexist experiences. Cronbach's α in the present study was .91.

Commitment. Twelve items out of the 45-item Dimensions of Commitment Inventory (DCI; Adams & Jones, 1997) were used to assess same-sex partners' commitment, and the other 33 items were removed as they assessed partners' willingness to maintain the marriage and/or intention to divorce (e.g., "I'm dedicated to making my marriage as fulfilling as it can be.", "A divorce would ruin my reputation."). The primary consideration is: Items relevant to marriage and divorce did not apply to all same-sex couples, due to the persisting barriers to obtain legal recognition and get married for same-sex couples at the time of data collection (i.e., 2014-2015). In the 12-item, abbreviated DCI, 7 items were taken from the 15-item "Commitment to Spouse" subscale of the original 45-item DCI (e.g., "No matter what, my partner knows that I'll always be there for him/her."), and 5 items were taken from the 15-item "Feelings of entrapment" subscale of the original 45-item DCI (e.g., "It would be particularly hard on my family and friends if my partner and I broke up."). On each item, partners indicated their agreement with the statement on a 5-point Likert scale from 1 (*strong disagreement*) to 5 (*strong agreement*). Three items were reversed (e.g., "When things go wrong in my close relationship, I consider breaking up."). To obtain the final score of commitment, I first calculated the subscale scores of "Feelings of entrapment" and "Feelings of entrapment" by averaging items on each subscale and then averaged the two subscale scores. Higher scores indicated higher levels of commitment. Cronbach's α in the present study was .73.

IPV. The Conflict Tactics Scale-Couple Form Revised (CTS-CF-R; Straus et al., 1996) was used to assess psychological IPV perpetration and physical IPV perpetration in same-sex relationships. Existing studies based on same-sex sample suggested that CTS-CF-R has relatively high levels of internal reliability (i.e., Cronbach's αs > .80; Kelley et al., 2015)

and construct validity (i.e., fit indices for confirmatory factor analyses were $\chi^2 = 33.80$ ($p = .01$), CFI = .95, and RMSEA = .08; Matte & Lafontaine, 2011). Moreover, prior studies using CTS-CF-R identified middle-sized, negative associations between IPV and same-sex couple relationship well-being, which indicates the criterion validity of CTS-CF-R in same-sex populations (Kelley et al., 2015).

The psychological IPV subscale contained 6 items (e.g., *Shout at him/her/you*), and the intimate physical IPV subscale included 9 items (e.g., *Beat him/her/you up*). For each item, participants were asked to report whether specific violent behavior never occurred, occurred once, twice, 3–5, 6 –10, 11–20, or more than 20 times in the past 12 months (i.e., a 7-category scale). To calculate the frequency of psychological and physical IPV in past 12 months, Straus (1995) suggested to convert the above 7 categories into single digit [i.e., *never* =0 as 0, *once* = 1, *twice* = 2, *3-5 times* =4 (i.e., median of the range), *6-10 times* = 8 (i.e., median of the range), *11-20 times* = 15 (i.e., median of the range), and *more than 20 times* = 25 (i.e., median of the range)]. I then summed up the single digit of items within each scale to reflect how many times in total the psychological IPV or physical IPV occurred during the past 12 months (Straus, 1995). Higher scores indicated more frequent violent behaviors. Cronbach's *α*s in the present study were .79 for psychological IPV and .72 for physical IPV.

To note, on each item of CTS, participants need to report how many times themselves and their partners perpetrated specific violent behaviors. In both prior studies (for a meta-analysis, see Simpson & Christensen, 2005) and the current study (ICC = .61 for psychological IPV and .35 for physical IPV), low-to-moderate levels of consistency emerged between focal participants' *self-report* perpetration and *their partners' report* on focal participants' perpetration. Moreover, given the self-serve bias and the social desirability bias, focal participants' *self-report* perpetration is typically underreported, whereas *their partners' report* on focal participants' perpetration tends to be overreported (for reviews, see Chan,

2011; Simpson & Christensen, 2005). To correct these biases and more accurately capture the frequency of IPV perpetration in same-sex couple relationships, I followed the procedures in existing studies (e.g., Bradley et al., 2014) and used the average scores of participants' *self-report* perpetration and *their partners' report* on focal participants' perpetration to represent the focal participants' IPV perpetration.

Covariates. A series of binary variables were created for couple types based on sex, race/ethnicity, income status, parental status, union status, and the state-level sociocultural climate. For couple type based on sex, same-sex female dyads were coded as 0, and same-sex male dyads as 1. For couple type based on race/ethnicity, 0 indicated that both partners in a couple were Non-Hispanic White and 1 indicated at least one partner in a couple was racial/ethnic minority. For couple type based on income status, 0 indicated low-income status and 1 indicated non-low-income status. For couple type based on parental status, couples having no child were coded as 0, and couples having at least one child as 1. For couple type based on union status, couples cohabitating without any legal recognition were coded as 0, and couples legally married or in a registered domestic partnership or civil unions as 1. For couple type based on state-level social-cultural climate, 0 indicated socio-culturally conservative states, and 1 indicated socio-culturally liberal states. To note, the state-level social-cultural climate was a self-developed item, and the research team of the larger project selected the two indexes based on prior studies (i.e., the index for how supportive the state law is for same-sex marriage and families; e.g., Goldberg & Smith, 2011; Rostosky et al., 2009) and group discussion (i.e., the index for the proportion of individuals voting for republican).

Analytic Strategies

Analyses proceeded in the following three steps: (1) addressing the distribution of outcomes; (2) pathway analyses, and (3) power analyses.

Step 1: Addressing the distribution of outcomes. As seen in Appendix E, psychological IPV perpetration and physical IPV perpetration were both extremely skewed (i.e., contains a large amount of zero and a small amount of high frequency). To deal with such distribution in IPV perpetration, I followed existing studies in the field of IPV and utilized the hurdle approach to model the outcome (Marshall et al., 2011). The hurdle approach included dual processes that can simultaneously estimate: (a) whether IPV perpetration occurs or not (i.e., the binary part), (b) among those who reported non-zero on IPV perpetration, whether the frequency is higher or lower (i.e., the continuous part; Hofmans, 2017; Marshall et al., 2011). Such an approach can fully capture the within-sample variability in IPV perpetration, which is theoretically warranted due to the facts that the occurrence and high frequency of IPV both result in reverse consequences for adult and children in the household (Caldwell et al., 2012; Kastello et al., 2016; Holmes., 2013). As another unique advantage, the hurdle approach can reflect the potential difference in predictors for the occurrence and the frequency of IPV perpetration (Hoffman, 2017; Marshall et al., 2011).

Step 2: Pathway analyses. Pathway analyses were conducted in M*plus* 8.3, and missing values were handled with full information maximum likelihood estimation method (FIML) (Acock, 2005). Two partners in a same-sex couple should be regarded as "*interchangeable*" from each other, as their sex does not vary within a couple (Kenny et al., 2006; Olsen & Kenny, 2006). Theoretically, within interchangeable dyads, two partners should have the same "population mean and variance on the predictor variable, the same actor effect, the same partner effect, the same intercept on the outcome variable, and the same error variance" (Sadler et al., 2011, p. 121). Thus, I added model constraints to fix these parameters of two partners to be equal (e.g., Olsen & Kenny, 2006; Sadler et al., 2011).

Notably, for all models I ran, I included five covariates: relational length as well as couple type based on sex, race/ethnicity, union type, and state-level sociocultural climate. Income status and parental status were not controlled for, because neither of them was significantly associated with the key study constructs in the represent study (seen in Table 9). Equality constraints were added on the paths from the covariates to each partner's psychological and physical IPV perpetration.

To test the model in Panel A of Figure 6, I conducted an actor-partner interdependence moderation model (APIMoM; Ledermann et al., 2011). Interactive terms were created by multiplying the mean-centered values for either internalized homophobia or discrimination with the mean-centered value for commitment. When the interactive term was significantly associated with the outcome, I probed the simple slopes. Given the sample size (N = 144 Couples) in the present study and the limited statistical power of moderating models, the examinations of the moderating roles of commitment in the associations from internalized homophobia and discrimination to IPV were conducted in two separate models (Garcia et al., 2015; McClelland & Judd, 1993).

To test the model in Panel B of Figure 6, I conducted an actor-partner interdependence mediation model (APIMeM; Ledermann et al., 2011) and simultaneously include the two partners' commitment to test specific indirect associations via each mediator. Indirect effects were estimated using bootstrapping, a nonparametric method that does not assume a normal distribution of indirect effects and can therefore adjust inflated type I and type II errors (Preacher & Hayes, 2008). The bias-corrected bootstrapped Confidence Intervals (CIs) were on 5,000 resamples. Conclusions regarding the statistical significance of indirect pathways were drawn from 95% bias-corrected bootstrapped CIs around the unstandardized indirect associations.

Step 3: Power analyses. Statistical power is the probability of finding a notable effect in a hypothesis test (Cohen, 2013). Given the modest sample size, particular attention was needed to determine whether the desired statistical power (i.e., > .80) has been obtained. To this end, I calculated statistical power for pathways with practically notable effects (i.e., $|\beta| > .1$; Odds Ratio (OR) > 1.3 or 1/OR > 1.3; Chen et al., 2010; Cohen, 1988), given the sample size and a type I error of .05 (two-tailed). As the present study was based on dyadic data from same-sex couples, I used an online calculator - *apimpower* (the version specific to indistinguishable dyads) - developed by Ackerman and Kenny (2016). This calculator is optimal for the current study as it considers the non-independence between two partners' reports (Ackerman & Kenny, 2016). To note, the *apimpower* supports power calculation for β, Cohen's d, and partial r yet not for OR. In order to perform power calculation for OR, I converted OR into Cohen's d based on Borenstein et al.'s (2009) guideline and via another online calculator developed by Lenhard and Lenhard (2016).

Results

Preliminary Analyses

Prevalence and frequency of IPV perpetration. For psychological IPV perpetration in the present study, 94.1% of the 288 partners perpetrated psychological IPV during the past 12 months. For those who perpetrated psychological IPV, the frequency ranged from 1 to 92 times (with a *Mean* of 18 times) during the past 12 months. For the prevalence of physical IPV perpetration in the present study, 23.6% of the 288 partners perpetrated physical IPV during the past 12 months. For those who perpetrated psychological IPV, the frequency ranged from 1 to 16 times (with a *Mean* of 2 times) during the past 12 months. The 12-month prevalence of psychological and physical IPV perpetration in the present study is higher than those in previous studies based on the community sample of the *general population* (Elliott et

al., 2011; Straus, 2017) and the *same-sex population* (Edwards & Sylaska, 2013; Finneran & Stephenson, 2013b).

Descriptive analyses and bivariate correlations. As seen in Table 9, it is expected that internalized homophobia and discrimination were positively correlated with IPV perpetration, and commitment was negatively correlated with IPV perpetration. Interestingly, whereas internalized homophobia was negatively correlated with commitment (as expected), discrimination was positively correlated with commitment.

Pathway Analyses for the Complementary Moderating and Mediating Models

Moderating model (Panel A in Figure 6). Table 10 displays the pathway analyses for the finalized moderating model. As seen in Panel A of Table 10, I found only one significant moderating effect between internalized homophobia and commitment on IPV perpetration. That is, the associations from the individuals' own internalized homophobia to the spouses' psychological IPV perpetration occurrence were moderated by the individuals' own commitment. Specifically, and seen in Figure 7, when individuals reported low levels of commitment (1 *SD* below the mean), higher levels of individuals' internalized homophobia were related to a higher probability of spouses' psychological IPV perpetration. Such associations became statistically insignificant when individuals reported high levels of commitment (1 *SD* above the mean).

As seen in Panel B of Table 10, commitment moderated associations from discrimination to occurrence and frequency psychological IPV perpetration. For the occurrence of psychological IPV perpetration, the associations from individuals' discrimination to their own and spouses' psychological IPV perpetration occurrence were both moderated by individuals' own commitment. As seen in Panel A and Panel B of Figure 8, when individuals reported low levels of commitment (1 *SD* below the mean), higher levels of individuals own discrimination were related to a higher probability of their own and the

spouses' psychological IPV perpetration. When individuals reported high levels of commitment (1 *SD* above the mean), the associations from individuals' discrimination to their own and the spouses' psychological IPV perpetration occurrence became statistically insignificant.

For the frequency of psychological IPV perpetration, among couples in which psychological IPV perpetration occurred, the associations from individuals' own discrimination to their own and spouses' psychological IPV perpetration occurrence were also moderated by individuals' own commitment. As seen in Panel A and Panel B of Figure 9, when individuals reported low levels of commitment (1 *SD* below the mean), higher levels of individuals own discrimination were related to a higher frequency of their own and the spouses' psychological IPV perpetration. When individuals reported high levels of commitment (1 *SD* above the mean), the associations from individuals' discrimination to their own and the spouses' psychological IPV perpetration frequency became statistically insignificant.

Mediating model (Panel B in Figure 6). Table 11 displays the pathway analyses for the finalized mediating model, and Table 12 displays all eight significant indirect effects calculated based on 5,000 bootstrap resampling. As seen in Table 12, the indirect effects from minority stressors to psychological IPV perpetration were specific to the continuous part (i.e., psychological IPV perpetration frequency). In particular, among couples in which psychological IPV perpetration occurred, higher levels of individuals' internalized homophobia were related to a higher frequency of individuals' own and the spouses' psychological IPV perpetration via lower levels of individuals own' commitment. Higher levels of individuals' discrimination were related to a lower frequency of individuals' own and the spouses' psychological IPV perpetration via higher levels of spouses' commitment.

The indirect effects from minority stressors to physical IPV perpetration were specific to the binary part (i.e., physical IPV perpetration occurrence). In particular, higher levels of individuals' internalized homophobia were related to a higher likelihood of individuals' own and the spouses' physical IPV perpetration via lower levels of individuals own' commitment. Higher levels of individuals' discrimination were related to lower likelihood of individuals' own and the spouses' physical IPV perpetration via higher levels of spouses' commitment.

Statistical Power Analyses

Statistical power for the moderating model (Panel A in Figure 6). Table 13 displays the statistical power analyses for practically notable pathways in the moderating model. The sample size in the present study has diminished the statistical power to identify all of them. On binary parts (i.e., the occurrence of IPV perpetration), the issue of low statistical power has been further intensified by the highly uneven distribution between those who reported no occurrence of IPV and those who reported occurrence of IPV. As the consequence, I cannot obtain a desired power for pathways predicting the occurrence of IPV unless the associations were medium or even large in effect sizes. For example, OR for the moderating effects between partner's discrimination and partner's commitment on individuals' own psychological IPV perpetration was .26. An OR of .26 was comparable to a Cohen's d of -.75 (i.e., calculated by the Lenhard and Lenhard's (2016) calculator) and should therefore be regarded as a large-size effect based on Cohen's (1988) guideline. Yet, given the uneven distribution on the outcome (i.e., 94% participants who reported occurrence versus 6% participants who did not report occurrence), the statistical power for this large-sized pathway was .77 (i.e., close to but still did not met the desired level of .80).

Statistical power for mediating model (Panel B in Figure 6). Table 14 displays the statistical power analyses for practically notable pathways in the mediating model. Similarly, I did not obtain a desired level of power for each pathway, either.

Analyzing Supplementary Research Question for Gender Difference in Sexual Minority Stressors

Considering the limited number of male dyads (i.e., 35 in total, 24.3% of the whole sample), I cannot conduct model comparisons between the model with female dyads and the model with male dyads. Instead, I treated gender as an additional moderator. Specific to the moderating model (Panel A of Figure 6), I added three-way interactions among sexual minority stressors (i.e., internalized homophobia and discrimination, respectively), commitment, and gender as predictors for IPV perpetration.

Specific to the mediating model (Panel B of Figure 6), I added two-way interactions between sexual minority stressors (i.e., internalized homophobia and discrimination, respectively) and gender as predictors for commitment and IPV perpetration. Yet, no significant gender difference was found in either the moderating model or the mediating model.

Discussion

I used the systemic transactional model (Bodenmann, 1997; Bodenmann et al., 2016) and stress resistance process (Hobfoll, 1985, 1989) as theoretical frameworks. The sample in this study was relatively diverse in terms of race/ethnicity, geographic location, union types, socioeconomic status in comparison to existing studies of same-sex couples. Further, data for this study were collected from both partners during a transitional period (i.e., 2014-2015) in which national legalization of same-sex marriage occurred in the United States. Guided by the aforementioned theories and using this dataset, I conducted APIMs and their derivations with moderation and mediation (APIMoM and APIMeM; Kenny et al., 2006; Ledermann et al., 2011). I chose this analytical approach to clarify whether spillover and crossover effects between minority stressors and IPV perpetration still existed after including both spouses'

reports in the same model (for a similar argument, see Buck & Neff, 2012; Neff & Karney, 2007).

In addition, I also took the very initial steps in the field of same-sex IPV to examine the role of commitment (i.e., relational resource) as a potential moderator and a potential mediator between minority stressors (i.e., external stressors) and same-sex IPV (i.e., relational outcomes). The goal is: (a) to use findings from the moderating model of the current study to provide preliminary evidence for *how to attenuate* the detrimental consequences of sexual minority stressors and (b) to use findings from the mediating model to provide preliminary evidence for *where to intervene*. Further, I considered the social transitions experienced by couples in the present study, as these transitions may reshape associations among stressors, resources, and relational outcomes. Findings from the present study are discussed below.

Findings that Support Theory

Generally speaking, the results from the present study support the theoretical framework (i.e., a combination of the systematic transactional model and the stress resistance process) and existing empirical studies. To begin with, both the systematic transactional model and the stress resistance process indicate associations from high external stressors to negative relational outcomes (Bodenmann, 1997; Bodenmann et al., 2016; Hobfoll, 1985, 1989). Moreover, as a central argument from the systematic transactional model, the interdependence in couple relationships rendered it possible for one partner's external stressors to trigger negative relational outcomes among both spouses (Bodenmann, 1997; Bodenmann et al., 2016). Consistent with these perspectives, I identified actor and partner associations from high levels of sexual minority to high likelihood and/or frequency of IPV perpetration.

Specific to the *moderating roles of relational resources*, I found a pattern that associations from high levels of individuals' own discrimination to high likelihood and/or frequency of their own and their partner's IPV perpetration was *buffered by high levels of individual's own commitment*. From the systematic transactional model and the stress resistance process, individuals equipped with adequate resources are less likely to experience negative outcomes along with external stressors (Bodenmann, 1997; Bodenmann et al., 2016; Hobfoll, 1985, 1989). Based on existing empirical studies (e.g., Finkel, 2007), experiencing external stressors should strengthen individuals' own tendencies toward IPV perpetration by engendering irritants and higher physiological arousal. Also, and as found by other researchers (e.g., Bodenmann et al., 2007; Neff, & Karney, 2017), individuals experiencing external stressors are likely to blame and express rigidity toward their partners, which probably increases the individuals' partners IPV perpetration tendency.

However, these aforementioned patterns may not be true for highly committed individuals. As a relational resource that indicates high motivation to persist in the couple relationship, commitment promotes individuals' willingness to be collaborative and supportive in relationships (Afifi et al., 2016; Hobfoll, 2001; Rusbult et al., 2001). Despite external stressors, highly committed individuals may have adjusted their own feelings and behaviors to avoid the expression of irritants, blame, and rigidity in their relationships. As such, external stressors experienced by highly committed individuals should not trigger IPV perpetration.

Specific to the *mediating roles of relational resource*, I found a pattern in which associations from high levels of individuals' own internalized homophobia to high likelihood and/or frequency of their own and their partner's IPV perpetration was *mediated by low levels of individuals' own commitment*. As argued in Chapter 1 and the literature review section of the current chapter, external stressors can also tax resources, and the reduced

resources in turn engender negative relational outcomes (Randall & Bodenmann, 2009). Also, and as indicated in the literature review section of this chapter, internalized homophobia should be related to lower levels of commitment (e.g., Greene & Britton, 2015). The decreased commitment is in turn the risk factor for IPV perpetration in couple relationship (e.g., Manning, et al., 2018).

In addition to confirming and supporting existing theories and literature, findings in the present study also extend the existing literature in the following ways. For one extension, the moderating roles of commitment in associations from discrimination and IPV perpetration have further clarified the previously inconsistent results specific to the links from discrimination to relational outcomes (Decker et al., 2018; Kimmes et al., 2017; also seen in the literature review section of the current chapter). That is, low and high levels of resources matter in whether or not discrimination is detrimental for couple relationships. To this end, simply focusing on main associations between discrimination and relational outcomes may have yielded the previously inconsistent results and in turn an underestimation on the detrimental effect of discrimination.

For an even more important extension, I found whether commitment is a moderator or mediator seems to depend on whether same-sex partners experienced discrimination or internalized homophobia. In particular, the moderating roles of commitment were more specific to discrimination (i.e., commitment buffered positive associations from high discrimination to high IPV perpetration). Yet, the mediating roles of commitment were more specific to internalized homophobia (high internalized homophobia→ low commitment→ high IPV perpetration).

As argued in Chapter 1 and the literature review in this chapter, the moderating roles of resources (i.e., resources buffer the detrimental effects of high stressors) apply if stressors intermittently occur and allow partners the opportunities to restore relational resources

(Karney et al., 2005). On the contrary, mediating roles of resources (i.e., high stressors → low resources→ negative relational outcomes) apply if stressors are constant and persistent ones that keep taxing relational resources (Karney et al., 2005; Randall & Bodenmann, 2009).

To this end, the moderating roles of commitment identified specific to discrimination hint at the plausibility of *regarding discrimination as intermittently occurring stressors*. Specifically, discrimination is the distal minority stressor that originates from the environment in which same-sex couples are living (Meyer, 2003a). As indicated in the literature review section of this chapter, the Supreme Court's ruling in *Obergefell v. Hodges* in 2015 may have largely reduced the discrimination experienced by sexual minority populations in the workplace, neighborhoods, and communities (Twenge & Blake, in press). Connecting this social change back to theory, same-sex partners now would have experienced opportunities to restore relational resources in situations in which no or little discrimination occurred, and these replenished resources could then be used to handle future stressors (Karney et al., 2005).

On the contrary, the mediating roles of commitment identified specific to internalized homophobia seem to hint at the possibility of *treating internalized homophobia as a constant and persistent stressor.* Specifically, internalized homophobia is a proximal minority stressor inherent in same-sex population's personal beliefs and attitudes (Meyer, 2003a; Totenhagen et al., 2018). Further, individuals experiencing homophobia may constantly worry about the negative evaluations and reactions they may have encountered as sexual minority population (Totenhagen et al., 2018), which depletes resources from the relationship.

To summarize, the present study extends the existing literature by highlighting the distinctions between *discrimination (i.e., distal and intermittently occurring)* and *internalized homophobia (i.e., proximal and constant/persistent).* In further understanding how these two different types of sexual minority stressors may have related to relational outcomes, the two

perspectives in the combination of systematic transactional model and the stress resistance process (i.e., the moderating and mediating roles of resources) should both be considered.

Findings Explained by Historical Periods

To note, the aforementioned theories and existing studies indicate that discrimination (i.e., external stressors) can also reduce commitment (i.e., the relational resource) and in turn increase IPV perpetration (i.e., negative relational outcomes) (Barrantes et al., 2017; Doyle & Molix, 2015; Randall & Bodenmann, 2009). However, for discrimination, I did not find any evidence supporting this mediating hypothesis reviewed in the literature review section (i.e., high minority stressors → low commitment → high IPV). Instead, I found that associations from high levels of individuals' own discrimination to low likelihood and/or frequency of their own and their partner's IPV perpetration was *mediated by high levels of individual's partner's commitment* (i.e., high minority stressors → high commitment → low IPV; opposite to the proposed mediating hypothesis).

The pattern that was opposite to the proposed mediating hypothesis may be because values and beliefs of couples, individuals, and families also vary across social transitions (Greenfield, 2017). Specific to the national legalization of same-sex marriage, this legal decision may have reshaped how same-sex partners interpreted and reacted to discriminative experiences. Previously, heteronormativity (i.e., the assumption that includes the assertion that only sexual attraction between two opposite, biological sex is natural or acceptable; Kitzinger, 2005) widely existed in society. To this end, and as originated in studies conducted earlier than this legal decision (e.g., Frost & Meyer, 2009), discrimination was regarded as the cost to stay in devalued and disenfranchised same-sex relationships.

However, as the campaign for the national legalization of same-sex marriage continued during 2014-2015, the rights of same-sex marriage have become more valued, and the levels of support and acceptance for same-sex couple relationships across the U.S. society

have also increased (Kazyak & Stange, 2018; Kennedy & Dalla, 2020). In an expanding context of inclusivity, sexual minority populations may have felt decreased isolation compared to during times in which they encountered discrimination (Ogolsky et al., 2019). Thus, I speculate that for those in same-sex couple relationships, when individuals encountered discrimination and shared those discriminatory experiences with their partners, their partners may have felt obligated and motivated to persist in the current relationship and support these individuals through discriminatory experiences. In turn, this increased commitment could be related to low likelihood and/or frequency of IPV perpetration of both spouses.

Limitations and Future Research Directions

Some limitations and future research directions should be noted. First, and due to the aim to examine actor and partner associations from sexual minority stressors and IPV, I only included couples in which both partners participated in the larger project. Based on the attrition analyses I conducted (detailed in the participants and procedures section of the current chapter), participants included in the present sample perpetrated less physical IPV than those from couples in which only one partner participated in the larger project. Thus, the prevalence of IPV perpetration (especially physical IPV perpetration) in the present sample may be underestimated. Generalizability of our findings also should be made with caution.

Second, the cross-sectional and correlational nature of the present analyses does not allow testing the directionality of the study associations. Longitudinal studies are still needed in the field of couple and family relationships among sexual minority individuals (for an exception, see Ogolsky et al., 2019). Third, given that all key variables in the present study were assessed via self-report questionnaires, the currently identified associations might have been inflated by shared-informant and shared-method variance. Also, considering the potential social desirability bias in self-report surveys, the levels of minority stressors and

IPV perpetration might be underreported, whereas the levels of commitment might be overreported in the present study. To more adequately capture the study constructs and the associations among them, future studies would benefit from utilizing multi-method and multi-informant designs.

Third, I used hurdle analyses in the present study for two reasons. The first one was to adjust the bias that would otherwise be inflated by the highly skewed distributions of IPV. The second one was to generate preliminary evidence supporting or refuting a possibility proposed by earlier researchers (e.g., Marshall et al., 2011): Predictors may differ between why IPV occurs (i.e., the binary part of the hurdle model) and why, if IPV has occurred, the frequency of IPV varies (i.e., non-zero part of the hurdle model).

However, the modest sample size of the current study prevented me from generating robust results in the non-zero part of hurdle models, especially for physical IPV. Specifically, the physical IPV perpetration was reported in about 20% of couples in the present study. Such IPV perpetration rates (i.e., ~20%) during the past 12 months were higher than those in previous studies based on the community samples of the *general population* (Elliott et al., 2011; Straus, 2017) and the *same-sex population* (Edwards & Sylaska, 2013; Finneran & Stephenson, 2013b). However, due to the challenges in recruiting sexual minority partners (especially including both partners in same-sex couples; see Meyer & Wilson, 2009), 144 couples in total were included in the present study. The non-zero part of physical IPV perpetration therefore included only 29 couples, and I had to omit the estimation of the predictive pathways for physical IPV perpetration frequency. In future research, a larger sample would be desirable if researchers plan to conduct hurdle models to investigate whether predictors may differ between why IPV occurs and why IPV frequency varies.

Conclusions and Implications

The present study demonstrated that, minority stressors, as external stressors that are uniquely experienced by sexual minority population, can engender negative relational outcomes (i.e., IPV) in same-sex couple relationships. In addition, commitment, as a relational resource, not only moderates but also mediates associations from minority stressors to IPV.

To note, whether commitment is the moderator or mediator depends on whether minority stressors are distal ones (i.e., discrimination) or proximal ones (internalized homophobia). Such distinctions between distal and proximal minority stressors are likely due to situations in which discrimination has been attenuated by the increasingly inclusive social cultural context along with the 2015 national legalization of same-sex marriage (Twenge, & Blake, in press). On the contrary, internalized homophobia (if it occurs) is same-sex individuals' internalization of negative attitudes and assumptions concerning homosexuality and will generally be constant and persistent. Also, individuals' own discrimination may increase their partner's commitment and then decrease both spouses' IPV perpetration, which may be explained by the following speculation. That is, same-sex partners become more confident in confronting unfairness and persisting in their relationships during the period when the value and equity of same-sex marriage has been legalized.

Accordingly, the following suggestions are proposed for researchers and practitioners. First, for researchers and practitioners who focus on IPV in the same-sex community, a minority-population-specific program should be implemented. That is, when diagnosing potential risk factors for same-sex IPV and conducting prevention/intervention, researchers and practitioners should go beyond factors identified in the heterosexual community and pay attention to discrimination and internalized homophobia experienced by both partners in a same-sex relationship (Li et al., in press).

Second, as associations with commitment and IPV differ between discrimination (i.e., distal minority stressors) and internalized homophobia (proximal minority stressors), different prevention/intervention plans are needed for these two types of minority stressors. For those who encounter discrimination, practitioners may first identify the less stressful situations in which either no or few instances of discriminations occur. Then practitioners can use these less stressful situations as opportunities to conduct prevention/intervention efforts to bolster relational commitment for both partners. As the intended consequence, same-sex partners will then be equipped with more resources to better handle future stressors.

On the contrary, for those who experience internalized homophobia, practitioners need to realize that such persistent and constant worries about negative evaluation or reactions against same-sex relationships continue to tax relational resources. To this end, the major goal for prevention/intervention efforts may to minimize of the worries experienced by same-sex partners (possibly by providing further legal protection and support for sexual minorities; Berg et al., 2016). As the intended consequence, same-sex partners can then experience less resource depletion, which in turn reduces the likelihood of experiencing negative relational outcomes.

Third, given another complex pattern related to discrimination (i.e., high discrimination → high commitment → low IPV; opposite of the proposed mediating hypothesis), researchers and practitioners need to pay attention to how same-sex partners perceive and react to discriminative experiences in their own lives. In particular, prevention/intervention efforts are needed to promote same-sex partners' feelings of being valued, equal and worthy of rights. Moreover, practitioners can also promote same-sex partners' understanding and support of each other's feelings of discrimination. To this end, same-sex partners can then be more motived to persist in the relationship and better equipped with relational resource to handle the still lingering discrimination.

CHAPTER IV. GENERAL DISCUSSION

Overview of the Two Studies

In this dissertation, my primary goal was to examine associations among external stressors, resources, and relational outcomes among underrepresented populations and during historical transitions. I integrated the systemic transactional model (Bodenmann, 1997; Bodenmann et al., 2016) and the stress resistance process (Hobfoll, 1985, 1989) as my overarching theoretical guideline. Across these two studies, dyadic data were used and APIMs (Kenny et al., 2006) as well as its deviations for moderation and mediation (APIMoM and APIMeM; Ledermann et al., 2011) were conducted, as the interdependence of both partners in a couple relationship requires such rigorous data collection and analyses procedure.

In Study 1, I used three-wave, dyadic data collected from 268 Chinese couples who were in the early years of marriage. These couples had experienced drastic social changes happening in recent several decades in China. In this study, external stressors were measured as general external stressors (stressors that can be experienced by all couples; Randall & Bodemann, 2009). Relational outcomes were measured as marital quality (i.e., the overall, subjective evaluation of marital happiness and satisfaction; Fincham & Bradbury, 1987). I also examined how associations from external stressors and marital quality were moderated by resources at three ecological levels: (a) self-esteem (personal resource), (b) spousal support (relational resource), and (c) relationships with parents and parents-in-law (social network resource).

As found in Study 1, resources at all three different levels buffered associations from high external stressors to low marital quality. In addition, some nuanced findings emerged, including (a) the gender difference in whether specific resources buffered negative associations from external stressors to marital quality, and (b) opposite patterns for the short-term vs. long-term results for husbands' relational resources (i.e., spousal support provided

by their wives). Specific to pattern (b), husbands' relational resources buffered negative associations from external stressors to marital quality in the short term but strengthened the same negative associations in the long term.

In Study 2, I used cross-sectional, dyadic data collected from 144 same-sex couples in the United States. During the data collection period (i.e., 2014-2015), couples in this study were experiencing a national campaign for the legalization of same-sex marriage, a major transition that may have greatly influenced the lives of sexual minority individuals. In this study, external stressors were measured as sexual minority stressors, including not only the proximal stressor (i.e., internalized homophobia) but also the distal stressor (i.e., discrimination). Relational outcomes were measured as intimate partner violence (i.e., a severe relational problem with detrimental consequences and of particularly high prevalence in the sexual minority community; Laskey et al., 2019; Messinger, 2017). I then examined how commitment (i.e., a relational resources) moderated and mediated associations from sexual minority stressors to intimate partner violence.

As found in Study 2, both internalized homophobia and discrimination were related to high intimate partner violence perpetration. More interestingly, it was relatively patterned that the moderating roles of commitment were more specific to discrimination, and the mediating roles of commitment were more specific to internalized homophobia. As another interesting finding, individuals' high levels of discrimination were related to their partner's high level of commitment, which in turn was related to low intimate partner violence perpetration for both spouses.

Summary and Future Directions

Considering Study 1 and Study 2 collectively, the present dissertation highlights several major points that helped to extend the understanding of associations among external stressors, resources, and relational outcomes. As articulated in Chapter 1, three theoretical

propositions from the theoretical frameworks (i.e., the integration of systemic transactional theory and stress resistance perspective) were used to guide the examination on associations among external stressors, resources, and relational outcomes. As elaborated below, all these three propositions were well supported.

First, across both studies, the present dissertation supports *Theoretical Proposition 1* from the theoretical framework: "*external stressors experienced by Partner A should not only affect Partner A him/herself but also Partner B.*" More specifically, I found that general external stressors (stressors experienced that can be by all couples; Randall & Bodemann, 2009) in Study 1 and unique external stressors (external stressors experienced by specific subgroup of population, including sexual minority stressors; Randall & Bodemann, 2009) in Study 2 can impede positive relational outcomes and engender negative relational outcomes.

Results related to associations between sexual minority stressors (i.e., external stressors experienced uniquely by sexual minority population) and intimate partner violence (i.e., negative relational outcome) in Study 2 were especially informative. In fact, multiple meta-analyses have found that intimate partner violence was more prevalent in same-sex communities than in heterosexual communities (e.g., Badenes-Ribera et al., 2015; Giulia, & Cinzia, 2018; Messinger, 2017). Instead of labeling same-sex couple relationships as more problematic than heterosexual relationships specific to intimate partner violence, I included sexual minority stressors (i.e., stressors that originated from the inequality and disadvantaged status experienced by sexual minority population, Meyer, 2003a) as a potential explanation for the excess rate of IPV in same-sex couple relationships. My findings then emphasize a social justice perspective that highlight how discrimination and prejudice have constrained well-being of minority populations (Russell, 2019).

Second, across both studies, the present dissertation conforms the *Theoretical Proposition 2* from the theoretical framework: "*resources at three ecological levels (i.e.,*

relational, personal, and social network) can all help reduce the detrimental effects of external stressors." More specifically, in Study 1 and Study 2, I found that relational resources (i.e., spousal support and commitment) buffered the detrimental effects from external stressors to relational outcomes. As specific to Study 1, I also found that self-esteem (personal resource) and relationships with parents and parent-in-law (social network resource) buffered negative associations between external stressors and marital quality. These findings highlight the necessity of researchers and practitioners in the field of couple and family relationships to go beyond the most studied relational resources.

In fact, whereas it is necessary for both partners to be mutually reliant (Bodenmann, 1997, Bodenmann et al., 2016), each partner should also be independent and autonomous (Lampis et al., 2019). Further, as couple relationships are embedded in a broader social network (rather than existing in isolation), maintaining high-quality relationships with those in the network are also necessary for obtaining resources in stressful conditions (Chong et al., 2017; Morr Serewicz, & Hosmer, 2011; Sprecher, 2011). To this end, the inclusion of these three ecological levels of resources -- those inherent in couple relationships, each individual, and social network -- benefits the understanding of relational outcomes (versus relying solely on the relational resource of couple relationships).

Third, and in Study 2, the present dissertation conforms the *Theoretical Proposition 3* from the theoretical framework: "*When external stressors were intermittently occurring in lives, partners can use resources to buffer the negative associations from stressors to relational outcomes; however, when encountering constant and persistent stressors (stressors that repeating occur occur), partners often experience a continuous drain of resources without enough opportunities to replenish these depleted resources. The depleted resources in turn often engender adverse relational outcomes.*" In study 2, I identified commitment as a moderator specific to discrimination and as mediator specific to internalized homophobia.

These important distinctions between discrimination and internalized homophobia are informative given the following reasons.

Specifically, it was relatively common for researchers in prior research to include different types of sexual minority stressors (from proximal to distal ones) as predictors in one model for specific outcomes (e.g., relational resource, relational outcome, mental health; Barrantes et al., 2017; Oshana et al., 2020). Prior researchers then tested which specific type of sexual minority stressors were more predictive for outcomes after controlling for other types of sexual minority stressors. Following such paradigms, previous studies suggested that internalized homophobia seemed more detrimental than discrimination (for a meta-analysis, see Cao et al., 2017).

However, by demonstrating the *moderating* roles of commitment in associations between discrimination and intimate partner violence, the present dissertation clarifies the role of discrimination in the associations to relational outcomes and highlights the underestimated detrimental effects of discrimination. In particular, for same-sex couples with limited resources to cope with external stressors, one partner's discrimination can result in a relatively high intimate partner violence perpetration for both spouses. Moreover, and according to *Theoretical Proposition 3* from the theoretical framework, the present dissertation suggests another direction to examine how different types of sexual minority stressors are related to relational outcomes. That is, researchers can evaluate whether each type of sexual minority stressors is *intermittently occurring* or *persistent and constant* in the daily lives of sexual minority individuals (e.g., discrimination as intermittently occurring ones versus internalized homophobia as persistent and constant ones, based on the present dissertation). Accordingly, different research perspectives and practice avenues should be taken when working with same-sex partners who are experiencing each type (e.g., distal or proximal ones) of sexual minority stressors.

Fourth, and across Study 1 and Study 2, I found some nuanced findings that cannot be explained by the three propositions. Instead, and as emphasized across Chapters 1, 2, and 3, social cultural backgrounds and/or historical periods helped to make sense of these nuanced findings (Greenfield, 2017). Specific to Study 1, for Chinese heterosexual couples, I found more interactive effects of husbands' resources in associations from husbands' external stressors to both spouses' relational outcomes than of wives' resources in associations from wives' external stressors to both spouses' relational outcomes (i.e., 6 for husbands' resources versus 2 for wives' resources). For other differences between husbands and wives in Study 1: Husbands' personal resources were beneficial, yet wives' personal resources were neither beneficial nor detrimental; husbands' social network resources were detrimental, yet wives' social network resources were beneficial.

The findings related to differences between husbands and wives in Study 1 may be explained by gender differences in Chinese marriage. That is, husbands are often expected to take on roles as providers who can independently solve problems whereas wives are often expected to take on roles as housekeepers for whom the major responsibility is to support husbands and manage relationships with social networks (Chen et al., 2009; Erol& Orth, 2013). In addition, I also found in Study 1 that husbands' relational resources (i.e., support provided by their wives) buffered detrimental effects of stressors in the short term yet exaggerated detrimental effects of stressors in the long term. Such opposite findings for husbands' relational resources may be explained by the multiple burdens encountered by Chinese women in modern society, in which support provided by Chinese wives to their husbands may avoid problems in the short term but increase exhaustion and deprivation for women in the long term (Li et al., 2020b; Maier & Priest, 2016).

Specific to Study 2, the nuanced finding was that: Individuals' discrimination was related to higher levels of their partner's commitment, which in turn was associated with less

IPV perpetration for both spouses. This nuanced finding makes sense after considering the ongoing campaign for the national legalization of same-sex marriage during the data collection period. In particular, same-sex partners may have felt decreased isolation compared to during times in which they encountered higher levels of discrimination (Ogolsky et al., 2019). This research by Ogolsky et al. (2019) then led to a speculation for those in same-sex couple relationships: When individuals encountered and shared discriminatory experiences with partners, partners may have then felt obligated and motivated to persist in the relationship and support individuals experiencing discrimination, which in turn seems to be related to low IPV perpetration for both spouses.

Fifth, in addition to theoretical implications described above, the statistical procedures used in this dissertation are also noteworthy. Across both studies, I used hurdle regression and included both binary and continuous parts of the outcomes. The primary goal of using these statistical techniques was to address the skewness of marital quality and intimate partner violence (i.e., a statistical challenge that is common but not yet properly handled in studies based on community samples in which both partners were included). The hurdle regression then yielded findings that may be informative for future researchers and practitioners. Specific to Study 1, the binary part of the model predicted whether husbands and wives reported were in a highly satisfied relationship. The continuous part of the model predicted, among those who were not in a highly satisfied relationship, why husbands and wives in some relationships experienced more dissatisfaction than their counterparts in other relationships. In Study 2, the binary part of the model predicted whether IPV perpetration occurred. The continuous part of the model predicted, among those who already perpetrated IPV, why same-sex partners in some relationships perpetrated IPV more frequently than their counterparts in other relationships. Although still tentative, findings across both studies suggested different predictors for the binary versus the continuous parts of the model. As

such, future researchers could consider using these statistical techniques in their future research so as to further explore the following possibility: The way to keep the desirable relational outcomes among those in high-quality, non-violent relationships is likely different from the way to prohibit further increase in marital dissatisfaction and escalation in violence among those who already experienced some distress and problems in relationships.

Conclusions

Before concluding, I should emphasize that this dissertation included two populations (one from Eastern cultural background and one from Western cultural background); these two populations, of course, are not an exhaustive list of understudied and underrepresented populations in the research field of couple and family relationships. However, the aim of the present dissertation is not to provide a conclusive summation that synthesizes experiences of all understudied and underrepresented populations in the research field of couple and family relationships. On the contrary, I included the current two populations as examples of understudied and underrepresented populations experiencing major social changes. The major aim of the dissertation was to further promote awareness and sensitivity to social cultural contexts and major social reforms when working with couples and families under stressors. Such awareness and sensitivity may be especially salient given the currently ongoing COVID-19 global pandemic. Specifically, the COVID-19 global pandemic is an event that is novel, disruptive, and critical (Vaziri et al., 2020), and such events have been demonstrated to result in changes of behaviors and beliefs over time (Eby et al., 2016). Moreover, the COVID-19 global pandemic further exaggerated variations among different populations, primarily by enlarging the existing inequality (i.e., more stressors but fewer resources) experienced by the already underrepresented and underserved populations (Brock & Laifer, 2020; van Deursen, 2020).

Given the note above, the present dissertation highlighted the necessity in utilizing available resources at multiple ecological levels– relational, personal, social network – rather than only the most commonly studied relational resources, while also considering whether stressors are intermittently occurring versus constant and persistent when helping couples and families cope with stressors and obtain desirable relational outcomes (i.e., high relational quality and low intimate partner violence). Meanwhile, couples and families with specific social cultural backgrounds may encounter unique challenges and/or possess unique resources, and the historical changes being experienced may further complicate experiences for each individual, couple, and family.

Table 1 Summary of samples, designs, and key study variables across both studies in the dissertation

	Study 1	**Study 2**
Samples and design	268 Chinese heterosexual, married couples, did not have children, and married for less than 3 years; Three-annual-wave, dyadic data collected in 2010, 2011, 2012.	144 same-sex couples in the United States (with 45.8% of couples were legally married or in registered domestic partnerships or civil unions); Cross-sectional, dyadic data collected in 2014-2015.
Measures for external stressors	Stressful events or issues with respect to work (e.g., losing job), social network relationships (e.g., relationship difficulties with close friends), personal problems (e.g., severe diseases or injuries), and accidents or natural disasters (e.g., car accidents). Assessed using the 19 items that were taken from Life Experiences Survey (Sarason, Johnson, & Siegel, 1978), the Relationship Issues Survey (Epstein & Werlinich, 1999), and the Life Event Scale (Yang & Zhang, 1999).	Sexual minority stressors: strains experienced uniquely by sexual minority population (Meyer, 2003a). Assessed using the Workplace Heterosexist Experiences Questionnaire (WHEQ; Waldo, 1999; 18 items) and the Lesbian Internalized Homophobia Scale (LIHS; Szymanski & Chung, 2001; 24 items)
Measures for resources	Personal resources: Self-esteem: Rosenberg (1979) Self-Esteem Scale; 10-items. Relational resources: Received partner support: The Support in Intimate Relationship Rating Scale that includes emotional, physical, information, and tangible subscales (Barry et al., 2009; 25 items) Social network resources:	Relational Resource: Commitment: Using the modified Dimensions of Commitment Inventory (DCI; Adams & Jones, 1997) to assess the intention to stay in the relationship (12 items).

	Relationship with extended family: Use four Likert items ranging from 1 (very bad) to 5 (very good) to assess relationship quality with father, mother, father-in-law, and mother-in-law (4 items).	
Measures for relational outcomes	**Positive aspect:** Marital quality.	**Negative aspect:** Intimate partner violence
	Definition: subjective, global evaluation of conjugal happiness and relational satisfaction (Fincham & Bradbury, 1987).	Definition: Intimate partner violence: a relationship problem that encompasses different forms of psychologically and physically aggressive behaviors (Heyman, Foran, & Wilkinson, 2010).
	Measures: I used the Quality of Marital Index (QMI; 6items).	Measures: Conflict Tactics Scale-Couple Form Revised (CTS-CF-R, Strau s et al., 1996; 15 items).

Table 2 Fixed effects for models to be estimated in Study 1, with different fixed predictors included in the binary part and continuous parts according to the 10-fold cross-validation, R2, theoretical guidance, and (if no theoretical guidance) model parsimoniousness.

	Fixed Predictors for *Binary* Part of Hurdle Gamma The likelihood of being totally satisfied $_{\text{dyad i, time j}}$ =	**Fixed Predictors for *Continuous* Part of Hurdle Gamma** The levels of dissatisfaction $_{\text{dyad i, time j}}$ =
Model 1	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time)	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time)
Model 2	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time) + π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors)	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time) + π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors) + π4_husbands (own external stressors × time) + π4_wives (own external stressors × time) + π5_husbands (partner's external stressors × time) + π5_wives (partner's external stressors × time)
Model 3	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time) + π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors) + π4_husbands (own self-esteem) + π4_wives (own self-esteem) + π5_husbands (partner's self-esteem) + π5_wives (partner's self-esteem) + π6_husbands (own external stressors × own self-esteem) + π6_wives (own external stressors × own self-esteem) + π7_husbands (partner's external stressors × partner's self-esteem) + π7_wives (partner's external stressors × partner's self-esteem)	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time) + π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors) + π4_husbands (own external stressors × time) + π4_wives (own external stressors × time) + π5_husbands (partner's external stressors × time) + π5_wives (partner's external stressors × time) + π6_husbands (own self-esteem) + π6_wives (own self-esteem) + π7_husbands (partner's self-esteem) + π7_wives (partner's self-esteem) + π8_husbands (own external stressors × own self-esteem) + π8_wives (own external stressors × own self-esteem) + π9_husbands (partner's external stressors × partner's self-esteem) + π9_wives (partner's external stressors × partner's self-esteem) + π10_husbands (own external stressors × own self-esteem × time)

		+ π10_wives (own external stressors × own self-esteem × time) + π11_husbands (partner's external stressors × partner's self-esteem × time) + π11_wives (partner's external stressors × partner's self-esteem × time)
Model 4	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time) + π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors) + π4_husbands (own spousal support) + π4_wives (own spousal support) + π5_husbands (partner's spousal support) + π5_wives (partner's spousal support) + π6_husbands (own external stressors × own spousal support) + π6_wives (own external stressors × own spousal support) + π7_husbands (partner's external stressors × partner's spousal support) + π7_wives (partner's external stressors × partner's spousal support)	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time) + π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors) + π4_husbands (own external stressors × time) + π4_wives (own external stressors × time) + π5_husbands (partner's external stressors × time) + π5_wives (partner's external stressors × time) + π6_husbands (own spousal support) + π6_wives (own spousal support) + π7_husbands (partner's spousal support) + π7_wives (partner's spousal support) + π8_husbands (own external stressors × own spousal support) + π8_wives (own external stressors × own spousal support) + π9_husbands (partner's external stressors × partner's spousal support) + π9_wives (partner's external stressors × partner's spousal support) + π10_husbands (own external stressors × own spousal support × time) + π10_wives (own external stressors × own spousal support × time) + π11_husbands (partner's external stressors × partner's spousal support × time) + π11_wives (partner's external stressors × partner's spousal support × time)
Model 5	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time)	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time)

	+ π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors) + π4_husbands (own relationship with parents and parents-in-law) + π4_wives (own relationship with parents and parents-in-law) + π5_husbands (partner's relationship with parents and parents-in-law) + π5_wives (partner's relationship with parents and parents-in-law) + π6_husbands (own external stressors × own relationship with parents and parents-in-law) + π6_wives (own external stressors × own relationship with parents and parents-in-law) + π7_husbands (partner's external stressors × partner's relationship with parents and parents-in-law) + π6_wives (partner's external stressors × partner's relationship with parents and parents-in-law)	+ π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors) + π4_husbands (own external stressors × time) + π4_wives (own external stressors × time) + π5_husbands (partner's external stressors × time) + π5_wives (partner's external stressors × time) + π6_husbands (own relationship with parents and parents-in-law) + π6_wives (own relationship with parents and parents-in-law) + π7_husbands (partner's relationship with parents and parents-in-law) + π7_wives (partner's relationship with parents and parents-in-law) + π8_husbands (own external stressors × own relationship with parents and parents-in-law) + π8_wives (own external stressors × own relationship with parents and parents-in-law) + π9_husbands (partner's external stressors × partner's relationship with parents and parents-in-law) + π9_wives (partner's external stressors × partner's relationship with parents and parents-in-law) + π10_husbands (own external stressors × own relationship with parents and parents-in-law × time) + π10_wives (own external stressors × own relationship with parents and parents-in-law × time) + π11_husbands (partner's external stressors × partner's relationship with parents and parents-in-law × time) + π11_wives (partner's external stressors × partner's relationship with parents and parents-in-law × time)
Supplementary	$\pi_{0\_husbands}$ + π0_wives + $\pi_{1\_husbands}$ (time) + π_{1_wives} (time) + π2_husbands (Cohabiting before marriage) + π2_wives (Cohabiting before marriage) + π3_husbands (Marital length)	$\pi_{0\_husbands}$ + π0_wives + $\pi_{1\_husbands}$ (time) + π_{1_wives} (time) + π2_husbands (Cohabiting before marriage) + π2_wives (Cohabiting before marriage) + π3_husbands (Marital length)

+ π3_wives (Marital length)	+ π3_wives (Marital length)
+ π4_husbands (Own age)	+ π4_husbands (Own age)
+ π4_wives (Own age)	+ π4_wives (Own age)
+ π5_husbands (partner's age)	+ π5_husbands (partner's age)
+ π5_wives (partner's age)	+ π5_wives (partner's age)
+ π6_husbands (own education)	+ π6_husbands (own education)
+ π6_wives (own education)	+ π6_wives (own education)
+ π7_husbands (partner's education)	+ π7_husbands (partner's education)
+ π7_wives (partner's education)	+ π7_wives (partner's education)
+ π8_husbands (own income)	+ π8_husbands (own income)
+ π8_wives (own income)	+ π8_wives (own income)
+ π9_husbands (partner's income)	+ π9_husbands (partner's income)
+ π9_wives (partner's income)	+ π9_wives (partner's income)

Note. The specification of random effects was based on 10-fold cross-validation; details are available in Appendix B. For random effects in the *binary* part, a random intercept for husbands and a random intercept for wives were both included. For random effects in the *continuous* part, a random intercept for husbands, a random intercept for wives, and a random slope for dyads were included for all models listed in Table 2. Detailed information for the specification of random effects is in Appendix B.

Table 3 Descriptive analyses and bivariate correlations for Study 1 (*N* = 268 Couples)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Key Study Variables														
1 External Stressors (H1)														
2 External Stressors (W1)	.11													
3 Self-esteem (H1)	**-.31**	-.07												
4 Self-esteem (W1)	-.01	**-.27**	**.15**											
5 Spousal support (H1)	-.03	-.06	.06	**.22**										
6 Spousal support (W1)	-.08	-.05	**.15**	.12	**.27**									
7 Relationship with parents and parents-in-law(H1)	**-.22**	**-.12**	**.16**	.10	**.19**	**.23**								
8 Relationship with parents and parents-in-law (W1)	**-.20**	**-.21**	**.18**	**.22**	**.19**	**.27**	**.79**							
9 Marital quality_Recoded (H1)	**.22**	.05	**-.14**	**-.14**	**-.22**	**-.21**	**-.28**	**-.30**						
10 Marital quality_Recoded (W1)	.12	**.28**	**-.16**	**-.33**	**-.46**	**-.20**	**-.33**	**-.36**	**.43**					
11 Marital quality_Recoded (H2)	**.26**	.08	-.08	-.12	-.09	**-.18**	**-.23**	**-.14**	**.33**	**.21**				
12 Marital quality_Recoded (W2)	**.17**	**.14**	-.09	**-.35**	**-.27**	**-.13**	**-.25**	**-.28**	**.20**	**.51**	**.38**			
13 Marital quality_Recoded (H3)	**.30**	.11	**-.25**	-.12	**-.29**	**-.31**	**-.26**	**-.25**	**.43**	**.34**	**.55**	**.38**		
14 Marital quality_Recoded(W3)	.11	.13	-.12	**-.28**	**-.29**	**-.25**	**-.21**	**-.26**	**.24**	**.32**	**.30**	**.53**	**.56**	
Covariates														
15 Cohabiting before marriage	.07	.09	.03	.01	-.01	.05	-.02	-.04	.01	.04	-.06	-.04	-.10	-.03
16 Marital length	**.15**	**.16**	**-.14**	**-.16**	**-.13**	-.07	**-.19**	**-.17**	.10	.11	**.23**	**.20**	**.25**	**.30**
17 Parental status	-.05	-.09	.01	-.01	-.02	-.02	.10	.08	-.09	-.08	-.09	-.13	.03	**.18**
18 Age (H1)	.003	.02	-.10	.06	.00	-.01	**-.16**	**-.12**	.08	.08	.13	.11	**.18**	.11
19 Age (W1)	.10	.03	**-.16**	-.02	-.06	-.10	**-.26**	**-.19**	.09	.10	.13	.10	**.28**	**.23**
20 Education (H1)	-.02	.10	**.25**	.11	-.02	.09	.08	.05	.02	-.05	-.03	-.11	-.06	-.07
21 Education (W1)	-.001	.11	.08	**.14**	-.04	-.04	-.04	-.08	.04	.08	.01	-.10	-.06	-.07
22 Income (H1)	-.01	.07	.10	.04	-.07	-.01	-.09	-.08	.05	-.04	**.16**	.08	.12	.03
23 Income (W1)	.003	.02	.01	**.14**	-.06	.03	-.05	-.05	.04	.08	.02	-.05	.07	.11
M	1.40	1.41	3.44	3.45	3.26	3.22	4.20	4.20	.77	.88	1.05	1.04	1.06	1.18
SD	.23	.23	.41	.43	.52	.47	.55	.57	.96	1.09	1.18	1.15	1.11	1.29

Note. H = Husbands, W = Wives, 1 = Wave 1, 2 = Wave 2, and 3 = Wave 3. Bolded are bivariate correlations that were significant at $p < .05$ (two-tailed level).

Table 4 Fixed effects in the unconditional growth model for marital quality in Study 1, with posterior mean exponentiated to get back the value on original scale of binary and continuous parts (N = 268 Couples)

	Husbands			**Wives**		
	Posterior mean (exponentiated)	95%HDI	89% HDI	Posterior mean (exponentiated)	95%HDI	89% HDI
Binary part						
Intercept	-1.97 (.14)	[-2.44, -1.56]	[-2.33, -1.62]	-2.54 (.08)	[-3.17, -2.00]	[-2.99, -2.05]
Time	-.17 (.84)	[-.43, .09]	[-.37, .03]	-.22 (.80)	[-.52, .07]	[-.44, .03]
Continuous part						
Intercept	-.26 (.77)	[-.39, -.13]	[-.36, -.15]	-.24 (.79)	[-.37, -.11]	[-.35, -.14]
Time	.13 (1.14)	[.06, .21]	[.07, .19]	.12 (1.13)	[.5, .20]	[.06, .18]

Note. For the continuous part, higher scores indicated higher unhappiness and dissatisfaction.
For the interpretation of coefficients, the exponentiated posterior mean of intercepts in the binary part indicated the probability for responding 0 (i.e., reported full marks on the original marital quality measurement, suggesting that individuals were in presumably highly satisfied relationships) at the initial time point.
The exponentiated posterior mean of intercepts in the continuous part indicated the levels of unhappiness and dissatisfaction at the initial time point.

Table 5 Fixed effects (predictors not centered) in the spillover and crossover effects model in Study 1, model was selected based on 10-fold cross-validation and posterior mean were exponentiated to get back the value on original scale of binary and continuous part (N = 268 Couples)

	Husbands			**Wives**		
	Posterior mean (exponentiated)	95%HDI	89% HDI	Posterior mean (exponentiated)	95%HDI	89% HDI
Binary part						
Intercept	3.31 (27.39)	[1.07, 5.63]	[1.54, 5.21]	3.95 (51.94)	[.86, 7.18]	[1.35, 6.44]
Time	-.17 (.84)	[-.43, .08]	[-.38, 0.04]	-.22 (.80)	[-.52, .07]	[-0.45, .02]
Own external stressors	-1.93 (.15)	[-3.19, -.76]	[-2.89, -.91]	-3.29 (.04)	[-5.23, -1.61]	[-4.74, -1.87]
Partner's external stressors	-1.72 (.18)	[-2.98, -.54]	[-2.70, -.70]	-1.21 (.30)	[-2.82, .31]	[-2.52, .01]
Continuous part						
Intercept	-1.45 (.23)	[-2.94, .07]	[-2.71, -.26]	-2.11 (.12)	[-3.58. -.65]	[-3.32, -.94
Time	-.20 (.82)	[-.84, .43]	[.21, 1.48]	-.06 (.94)	[-.66, .55]	[-.56, .43]
Own external stressors	.85 (2.34)	[.08, 1.66]	[.21, 1.48]	.91 (2.48)	[.17, 1.67]	[.31, 1.54]
Partner's external stressors	-.09 (.91)	[-.87, .68]	[-.71, .55]	.33 (1.39)	[-.44, 1.09]	[-.32, .92]
Own external stressors × time	.08 (1.08)	[-.26, .41]	[-.18, .36]	.04 (1.04)	[-.28, .35]	[-.24, .28]
Partner's external stressors × time	.16 (1.17)	[-.17, .49]	[-.11, .43]	.09 (1.09)	[-.23, .41]	[-.17, .35]

Note. For the continuous part, higher scores indicated higher unhappiness and dissatisfaction.
Based on the 10-fold cross-validation results in Appendix C, the two interactive terms (Own external stressors × Time, Partner's external stressors × Time) were only included in the continuous part of the selected spillover and crossover effects model.

Table 6 Fixed effects (predictors not centered) in the model testing the moderating roles of self-esteem in Study 1, building upon the selected spillover and crossover models and with posterior mean exponentiated to get back the value on original scale of binary and continuous part (*N* = 268 Couples)

	Husbands			**Wives**		
	Posterior mean (exponentiated)	95%HDI	89% HDI	Posterior mean (exponentiated)	95%HDI	89% HDI
Binary part						
Intercept	-5.72 (.00)	[-24.51, 12.14]	[-21.48, 8.32]	9.15 (9414.44)	[-18.88, 4.28]	[-15.58, 32.01]
Time	-.17 (.84)	[-.42, .08]	[-.38, .04]	-.23 (.79)	[-.52, .07]	[-.46, .02]
Own external stressors	-1.42 (.24)	[-9.98, 6.03]	[-7.85, 4.96]	-.38 (.68)	[-15.69, 13.67]	[-11.84, 12.18]
Partner's external stressors	2.05 (7.77)	[-6.70, 1.64]	[-4.83, 9.55]	-13.55 (.00)	[-29.25, -.35]	[-25.35, -2.04]
Own self-esteem	.37 (1.45)	[-3.14, 3.69]	[-2.35, 3.12]	2.84 (17.12)	[-3.13, 8.72]	[-2.12, 7.59]
Partner's self-esteem	2.13 (8.41)	[-1.50, 5.87]	[-.85, 5.24]	-4.64 (.01)	[-1.81, .74]	[-9.44, -.08]
own external stressors × own self-esteem	-.14 (.87)	[-2.41, 2.38]	[-2.00, 1.81]	-.72 (.49)	[-4.73, 3.51]	[-4.28, 2.56]
Partner's external stressors × Partner's self-esteem	-1.03 (.36)	[-3.52, 1.52]	[-3.10, 1.05]	3.64 (38.09)	[-.19, 8.12]	[.33, 7.03]
Continuous part						
Intercept	.57 (1.77)	[-1.32, 11.10]	[-8.34, 8.82]	-1.43 (.24)	[-21.82, .48]	[-18.83, -.92]
Time	.84 (2.32)	[-3.92, 5.64]	[-2.76, 4.93]	3.87 (47.94)	[-.81, 8.68]	[-.12, 7.50]
Own external stressors	-2.54 (.08)	[-7.52, 2.59]	[-6.52, 1.66]	2.06 (7.85)	[-2.79, 7.19]	[-1.81, 6.32]
Partner's external stressors	2.53 (12.55)	[-2.36, 7.49]	[-1.56, 6.59]	6.54 (692.29)	[1.41, 11.84]	[2.48, 1.90]
Own self-esteem	-1.40 (.25)	[-3.64, .90]	[-3.25, .41]	-.02 (.98)	[-2.27, 2.32]	[-1.83, 1.84]
Partner's self-esteem	.84 (2.32)	[-1.37, 3.07]	[-1.14, 2.50]	2.69 (14.73)	[.42, 5.08]	[.75, 4.53]
Own external stressors × time	.83 (2.29)	[-1.48, 3.22]	[-1.13, 2.71]	-1.28 (.28)	[-3.40, .83]	[-3.01, .41]
Partner's external stressors × time	-1.02 (.36)	[-3.21, 1.18]	[-2.68, .82]	-1.44 (.24)	[-3.70, .81]	[-3.15, .53]
own external stressors × own self-esteem	1.07 (2.92)	[-.48, 2.59]	[-.21, 2.26]	-.42 (.66)	[-1.96, 1.04]	[-1.59, .81]
Partner's external stressors × Partner's self-esteem	-.86 (.42)	[-2.32, .58]	[-2.07, .34]	-1.91 (.15)	[-3.50, -.37]	[-3.19, -.64]
Own self-esteem × time	.25 (1.28)	[-.77, 1.30]	[-.62, 1.07]	-.60 (.55)	[-1.58, .37]	[-1.43, .14]
Partner's self-esteem × time	-.52 (.59)	[-1.50, .48]	[-1.28, .30]	-.60 (.55)	[-1.63, .41]	[-1.42, .22]
own external stressors × own self-esteem × time	-.26 (.77)	[-.97, .44]	[-.82, .34]	.39 (1.48)	[-.25, 1.02]	[-.10, .93]
partner's external stressors × partner's self-esteem × time	.35 (1.42)	[-.30, 1.00]	[-.18, .85]	.49 (1.63)	[-.18, 1.17]	[-.08, 1.03]

Note. For the continuous part, higher scores indicated higher unhappiness and dissatisfaction.

Table 7 Fixed effects (predictors not centered) in the model testing the moderating roles of spousal support in Study 1, building upon the selected spillover and crossover models and with posterior mean exponentiated to get back the value on original scale of binary and continuous part (*N* = 268 Couples)

	Husbands			**Wives**		
	Posterior mean (exponentiated)	95%HDI	89% HDI	Posterior mean (exponentiated)	95%HDI	89% HDI
Binary part						
Intercept	3.88 (48.42)	[-13.09, 2.45]	[-9.45, 17.88]	4.65 (104.58)	[-17.99, 27.20]	[-13.80, 22.68]
Time	-.17 (.84)	[-.44, .08]	[-.39, .04]	-.22 (.80)	[-.52, .07]	[-.45, .02]
Own external stressors	-4.36 (.01)	[-12.22, 3.17]	[-1.42, 2.02]	-3.00 (.05)	[-16.31, 1.13]	[-14.00, 7.26]
Partner's external stressors	-3.18 (.04)	[-13.16, 6.96]	[-11.40, 4.89]	-7.03 (.00)	[-18.58, 4.31]	[-16.19, 2.04]
Own spousal support	-.86 (.42)	[-4.10, 2.26]	[-3.44, 1.68]	.76 (2.14)	[-4.66, 6.33]	[-3.70, 5.19]
Partner's spousal support	.58 (1.79)	[-3.49, 4.85]	[-2.92, 3.85]	-1.05 (.35)	[-5.66, 3.45]	[-4.84, 2.50]
own external stressors × own spousal support	.78 (2.18)	[-1.57, 3.18]	[-1.19, 2.63]	-.03 (.97)	[-4.11, 4.00]	[-3.32, 3.23]
Partner's external stressors × Partner's spousal support	.49 (1.63)	[-2.63, 3.48]	[-1.90, 3.02]	1.77 (5.87)	[-1.60, 5.21]	[-.82, 4.59]
Continuous part						
Intercept	-1.45 (.00)	[-19.45, -1.11]	[-18.46, -3.26]	-6.57 (.00)	[-15.30, 2.40]	[-14.42, .16]
Time	3.63 (37.71)	[-.47, 7.65]	[.24, 6.82]	3.50 (33.12)	[-.43, 7.28]	[.35, 6.60]
Own external stressors	4.37 (79.04)	[.03, 8.84]	[.60, 7.72]	3.08 (21.76)	[-1.66, 7.79]	[-.83, 6.90]
Partner's external stressors	4.17 (64.72)	[-1.40, 9.31]	[-.25, 8.48]	3.32 (27.66)	[-1.11, 7.66]	[-.32, 6.73]
Own spousal support	1.34 (3.82)	[-.55, 3.29]	[-.27, 2.85]	1.12 (3.06)	[-.99, 3.19]	[-.54, 2.86]
Partner's spousal support	1.58 (4.85)	[-.86, 3.88]	[-.33, 3.51]	.39 (1.48)	[-1.53, 2.32]	[-1.13, 2.03]
Own external stressors × time	-.95 (.39)	[-2.87, .91]	[-2.51, .64]	-1.16 (.31)	[-3.24, .87]	[-2.78, .55]
Partner's external stressors × time	-1.47 (.23)	[-3.71, .87]	[-3.44, .37]	-1.45 (.23)	[-3.37, .47]	[-2.91, .13]
own external stressors × own spousal support	-1.14 (.32)	[-2.53, .25]	[-2.24, -.00]	-.70 (.50)	[-2.19, .80]	[-1.95, .48]
Partner's external stressors × Partner's spousal support	-1.37 (.25)	[-3.02, .37]	[-2.81, -.06]	-.99 (.37)	[-2.38, .41]	[-2.08, .15]
Own spousal support × time	-.45 (.64)	[-1.29, .38]	[-1.13, .27]	-.64 (.53)	[-1.55, .27]	[-1.40, .09]
Partner's spousal support × time	-.75 (.47)	[-1.76, .29]	[-1.57, .12]	-.50 (.61)	[-1.36, .34]	[-1.17, .21]
own external stressors × own spousal support × time	.32 (1.38)	[-.27, .92]	[-.20, .79]	.37 (1.45)	[-.27, 1.02]	[-.16, .90]
partner's external stressors × partner's spousal support × time	.52 (1.68)	[-.23, 1.22]	[-.10, 1.11]	.50 (1.65)	[-.09, 1.11]	[.03, 1.00]

Note. For the continuous part, higher scores indicated higher unhappiness and dissatisfaction.

Table 8 Fixed effects (predictors not centered) in the simplified model testing the moderating roles of relationship with parents and parents-in-law (PILs) in Study 1, building upon the selected spillover and crossover models but then simplified according to model convergence information and 10-fold cross-validation, with posterior mean exponentiated to get back the value on original scale of binary and continuous part (N = 268 Couples)

	Husbands			**Wives**		
	Posterior mean (exponentiated)	95%HDI	89% HDI	Posterior mean (exponentiated)	95%HDI	89% HDI
Binary part						
Intercept	-5.61 (.00)	[-18.52, 7.60]	[-17.01, 4.12]	4.25 (70.11)	[-16.25, 25.59]	[-11.79, 22.81]
Time	-.17 (.84)	[-.42, .09]	[-.39, .03]	-.22 (.80)	[-.52, .08]	[-.47, .01]
Own external stressors	1.48 (4.39)	[-4.83, 7.46]	[-3.20, 6.66]	-14.69 (.00)	[-29.54, -1.22]	[-26.22, -3.22]
Partner's external stressors	-.04 (.96)	[-7.57, 7.16]	[-6.12, 5.87]	6.05 (424.11)	[-1.44, 13.77]	[.19, 12.57]
Own relationship with parents and PILs	.28 (1.32)	[-.26, .81]	[-.16, .71]	-.53 (.59)	[-1.67, .57]	[-1.47, .35]
Partner's relationship with parents and PILs	.24 (1.27)	[-.43, .90]	[-.28, .80]	.48 (1.62)	[-.19, 1.18]	[-.10, 1.03]
own external stressors × own relationship with parents and PILs	-.21 (.81)	[-.59, .19]	[-.52, .11]	.71 (2.03)	[-.09, 1.56]	[.03, 1.37]
Partner's external stressors × Partner's relationship with parents and PILs	-.09 (.91)	[-.53, .37]	[-.46, .28]	-.44 (.64)	[-.93, .03]	[-.83, -.05]
Continuous part						
Intercept	2.06 (7.85)	[-2.19, 6.31]	[-1.54, 5.40]	.2 (1.22)	[-4.41, 4.73]	[-3.57, 3.72]
Time	-.18 (.84)	[-.82, .44]	[-.71, .32]	-.04 (.96)	[-.65, .58]	[-.52, .49]
Own external stressors	-1.1 (.33)	[-3.23, 1.02]	[-2.88, .56]	1.19 (3.29)	[-1.27, 3.78]	[-.90, 3.12]
Partner's external stressors	-.07 (.93)	[-2.44, 2.36]	[-2.01, 1.94]	-.7 (.50)	[-2.84, 1.37]	[-2.35, 1.05]
Own relationship with parents and parents-in-law	-.19 (.83)	[-.38, .00]	[-.34, -.04]	-.04 (.96)	[-.28, .19]	[-.24, .15]
Partner's relationship with parents and parents-in-law	-.02 (.98)	[-.24, .20]	[-.21, .15]	-.07 (.93)	[-.27, .12]	[-.22, .09]
Own external stressors × time	.07 (1.07)	[-.26, .40]	[-.21, .33]	.04 (1.04)	[-.28, .36]	[-.22, .30]
Partner's external stressors × time	.15 (1.16)	[-.18, .47]	[-.12, .41]	.08 (1.08)	[-.23, .41]	[-.19, .33]
own external stressors × own relationship with parents and PILs	.12 (1.13)	[-.01, .25]	[.01, .22]	-.03 (.97)	[-.19, .12]	[-.16, .10]
Partner's external stressors × Partner's relationship with parents and PILs	-.01 (.99)	[-.16, .14]	[-.14, .10]	.06 (1.06)	[-.08, .20]	[-.05, .17]

Note. For continuous part, higher scores indicated higher unhappiness and dissatisfaction. According to the model convergence information and 10-fold cross-validation, I did not estimate the effects of following fixed predictors in the continuous part of the simplified model: Own relationship with parents and parents-in-law × Time, Partner's relationship with parents and parents-in-law × Time, Own external stressors × Own relationship with parents and parents-in-law × Time, and Partner's external stressors × Partner's relationship with parents and parents-in-law × Time.

Table 9 *Descriptive analyses and bivariate correlations for Study 2 (*N = *144 Couples)*

	Internalized homophobia	Discrimination	Commitment	Psychological IPV perpetration	Physical IPV perpetration [a]
Key study constructs					
Internalized homophobia (WPA)					
Internalized homophobia (BPA)	**.21****				
Discrimination (WPA)	.36***				
Discrimination (BPA)	.17**	**.20****			
Commitment (WPA)	-.16**	.01			
Commitment (BPA)	-.04	.15**	**.25****		
Psychological IPV perpetration (WPA)	.15*	.13*	-.20**		
Psychological IPV perpetration (BPA)	.17**	.18**	-.22***	**.83*****	
Physical IPV perpetration (WPA)	.11†	.10†	-.22***	.47***	
Physical IPV perpetration (BPA)	.09	.11*	-.22***	.44***	**.66*****
Covariates					
Relational length	.04	-.22*	.06	-.01	-.08
Couple type based on sex [ref = female, b]	.44	-1.05	1.54	-2.73**	-.84
Couple type based on race/ethnicity [ref = white, b]	1.80†	.92	-2.42*	1.11	.92
Income status [ref = non-low-income status, b]	-.15	.36	-.62	.80	.45
Union status [ref = legally married or registered]	.69	1.65	-1.96†	-.55	1.13
Parental status [ref = having no child, b]	-1.14	-1.41	.01	.41	1.68
State-level sociocultural climate [ref = liberal, b]	1.89†	1.44	.05	.89	.62

Note. IPV = Intimate Partner Violence, and ref = Reference group. Bold values represented intraclass ICCs. Significance was calculated using *z* scores with adjusted standard errors (Kenny et al., 2006). † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).

[b] For binary covariates, I conducted *t*-tests to detect differences in key study constructs between two levels of each binary covariate. I then displayed the independent *t* in the table.

Table 10 Results for pathway analyses for the finalized moderating models in Study 2 (*N* = 144 Couples)

	Panel A: Commitment moderating the effects of IHP				**Panel B: Commitment moderating the effects of discrimination**			
	Psychological IPV		***Physical IPV***		***Psychological IPV***		***Physical IPV***	
	Occurrence [1] B (Odd ratio)	Frequency B (β)	Occurrence [1] B (Odd ratio)	Frequency B (β)	Occurrence [1] B (Odd ratio)	Frequency B (β)	Occurrence [1] B (Odd ratio)	Frequency B (β)
Own IHP	1.04 (2.82)	.81 (.04)	.03 (1.03)	--	1.14 (3.13) *	.86 (.04)	-.01 (.99)	--
Partner's IHP	1.04 (2.83)	.64 (.03)	-.03 (.98)	--	.92 (2.51)	.71 (.04)	-.01 (.99)	--
Own discrimination	-.07 (.93)	.95 (.03)	.47 (1.59)	--	.05 (1.05)	1.01 (.03)	.41 (1.51)	--
Partner's discrimination	-.23 (.79)	5.06 (.13) *	.52 (1.68)	--	.22 (1.25)	5.40 (.14) *	.47 (1.60)	--
Own commitment	.55 (1.73)	-7.82 (-.20) **	-1.03 (.36) *	--	.51 (1.67)	-7.92 (-.21) **	-.90 (.41) *	--
Partner's commitment	-.64 (.53)	-8.08 (-.21) **	-.92 (.40) **	--	-.37 (.69)	-7.04 (-.18) **	-.88 (.42) *	--
Own IHP × Own commitment	-.32 (.73)	-1.12 (-.03)	.28 (1.32)	--	--	--	--	--
Partner's IHP × Partner's commitment	-1.36 (.26) **	.60 (.01)	.04 (1.04)	--	--	--	--	--
Own discrimination × Own commitment	--	--	--	--	-1.72 (.18) *	-8.28 (-.15) *	-.63 (.53)	--
Partner's discrimination × Partner's commitment	--	--	--	--	-2.19 (.11)***	-12.65 (-.15) **	-.62 (.54)	--
R^2	.52	.17	.22	--	.53	.22	.20	--

Note. [1] In *Mplus* 8.3, the coefficients for the binary part indicates the effects on the likelihood of IPV perpetration occurrence (i.e., those who responded 1 on the binary outcome). IHP = internalized homophobia. * $p < .05$, ** $p < .01$ (two-tailed).
Predictors not centered in this model.
Given the small sample size for the non-zero part of physical IPV perpetration (*N* = 29 couples), I decided to omit the estimation of the predictive pathways for physical IPV perpetration frequency in the finalized moderating models. As seen in Appendix F, omitting the non-zero part of physical IPV perpetration did not change result patterns for other portion in the moderating models.
I also compared the models with and without the non-zero part of physical IPV perpetration. As these models were non-nested, Akaike information criterion (AIC) and Bayesian information criterion (BIC) were used for model selections (i.e., smaller AIC and BIC suggest better models; for a review, see Huang, 2017). For models testing the interaction between internalized homophobia and commitment, the model without non-zero part of physical IPV perpetration (AIC = 2954.11; BIC = 3091.01) was preferred to the model with non-zero part of physical IPV perpetration (AIC = 3223.21; BIC = 3418.36). Similarly, for models testing the interaction discrimination and commitment, the model without non-zero part of physical IPV perpetration (AIC = 2937.89; BIC = 3074.78) was preferred to the model with non-zero part of physical IPV perpetration (AIC = 3207.61; BIC = 3402.75).

Table 11 Results for pathway analyses of the finalized mediating model in Study 2 (*N* = 144 Couples)

	Predictive pathways to commitment	**Predictive pathways to IPV perpetration**			
		Psychological IPV		***Physical IPV***	
	B (β)	Occurrence [1] B (Odd ratio)	Frequency B (β)	Occurrence [1] B (Odd ratio)	Frequency B (β)
Own internalized homophobia	-.10 (-.17) **	1.05 (2.84) *	.83 (.04)	-.02 (.98)	--
Partner's internalized homophobia	-.05 (-.09)	.88 (2.41)	.64 (.04)	-.02 (.98)	--
Own discrimination	.03 (.04)	-.05 (.95)	.87 (.03)	.47 (1.61)	--
Partner's discrimination	.17 (.17) **	-.22 (.80)	5.12 (.14) *	.51 (1.66)	--
Own commitment	--	.53 (1.70)	-8.26 (-.21) ***	-.95 (.39) **	--
Partner's commitment	--	-.07 (.93)	-7.77 (-.20) **	-.92 (.40) **	--
R^2	.06	.44	.15	.16	--

Note. [1] In *Mplus* 8.3, the coefficients for the binary part indicates the effects on the likelihood of IPV perpetration occurrence (i.e., those who responded 1 on the binary outcome). * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).
Predictors not centered in this model.
Given the small sample size for the non-zero part of physical IPV perpetration (*N* = 29), I decided to omit the estimation of the predictive pathways for physical IPV perpetration frequency in the finalized mediating models. As seen in Appendix F, omitting the non-zero part of physical IPV perpetration did not change the result pattern for other portion in the mediating model.
I also compared the models with and without the non-zero part of physical IPV perpetration. As these models were non-nested, Akaike information criterion (AIC) and Bayesian information criterion (BIC) were used for model selections (i.e., smaller AIC and BIC suggest better models; for a review, see Huang, 2017). The model without non-zero part of physical IPV perpetration (AIC = 2946.37; BIC = 3074.53) was preferred to the model with non-zero part of physical IPV perpetration (AIC = 3212.24; BIC = 3392.82)

Table 12 Significant indirect effects calculated based on 5,000 bootstrap resampling in Study 2 (*N* = 144 Couples)

Specific pathways tested in the model	Bootstrap estimates for indirect effects		
	Unstandardized	95% CI	Standardized
Internalized homophobia → Own psychological IPV perpetration (Frequency) via own commitment	.826	[.176, 1.756]	.037
Internalized homophobia → Partner's psychological IPV perpetration (Frequency) via own commitment	.777	[.102, .1.759]	.034
Internalized homophobia → Own physical IPV perpetration (Occurrence) [1] via own commitment	.095	[.016, .233]	.042
Internalized homophobia → Partner's physical IPV perpetration (Occurrence) [1] via own commitment	.092	[.013, .239]	.039
Discrimination → Own psychological IPV perpetration (Frequency) via partner's commitment	-1.305	[-3.120, -.205]	-.043
Discrimination → Own psychological IPV perpetration (Frequency) via partner's commitment	-1.338	[-2.945, -.361]	-.037
Discrimination → Own physical IPV perpetration (Occurrence) [1] via partner's commitment	-.154	[-.395, -.026]	-.049
Discrimination → Own physical IPV perpetration (Occurrence) [1] via partner's commitment	-.159	[-.416, -.033]	-.041

Note. [1] In Mplus 8.3, the coefficients for the binary part indicates the effects on the likelihood of IPV perpetration occurrence.

Table 13 Statistical power analyses for practically noteworthy pathways in the moderating models in Study 2 (N = 144 Couples)

	Commitment moderating the effects of IHP				**Commitment moderating the effects of discrimination**			
	Psychological IPV		***Physical IPV***		***Psychological IPV***		***Physical IPV***	
	Occurrence	Frequency	Occurrence	Frequency	Occurrence	Frequency	Occurrence	Frequency
Own IHP	.55				.70			
Partner's IHP	.55				.52			
Own discrimination			.42				.34	
Partner's discrimination		.66	.51			.69	.43	
Own commitment	.19	**.93**	**.97**		.20	**.97**	**.92**	
Partner's commitment	.25	**.95**	**.94**		.13	**.91**	**.91**	
Own IHP × Own commitment	.10		.18					
Partner's IHP × Partner's commitment	.77		.42					
Own discrimination × Own commitment					**.96**	.72	.68	
Partner's discrimination × Partner's commitment					**.99**	.72	.65	

Note. To be regarded as practically noteworthy: $|\beta| > .1$; Odds Ratio (OR) > 1.3 or 1/OR > 1.3 (Chen et al., 2010; Cohen, 1988). For pathways that were not specified in the model or tested yet with practically negligible effects, no statistical power was calculated and the cell was left blank.

Bolded are pathways that has obtained desired level of power (> .80) given the sample size of 144 couples a type I error of .05 (two-tailed).

Table 14 Statistical power analyses for practically noteworthy pathways in the mediating models in Study 2 (*N* = 144 Couples)

	Predictive pathways to commitment	**Predictive pathways to IPV perpetration**			
		Psychological IPV		***Physical IPV***	
		Occurrence	Frequency	Occurrence	Frequency
Own internalized homophobia	**.82**	.62			
Partner's internalized homophobia		.48			
Own discrimination				.44	
Partner's discrimination	**.82**		.65	.53	
Own commitment		.21	**.95**	**.95**	
Partner's commitment			**.93**	**.94**	

Note. To be regarded as practically noteworthy: $|\beta| > .1$; Odds Ratio (OR) > 1.3 or 1/OR > 1.3 (Chen et al., 2010; Cohen, 1988). For pathways that were not specified in the model or tested yet with practically negligible effects, no statistical power was calculated and the cell was left blank.

Bolded are pathways that have obtained desired level of power given the sample size of 144 couples and a type I error of .05 (two-tailed).

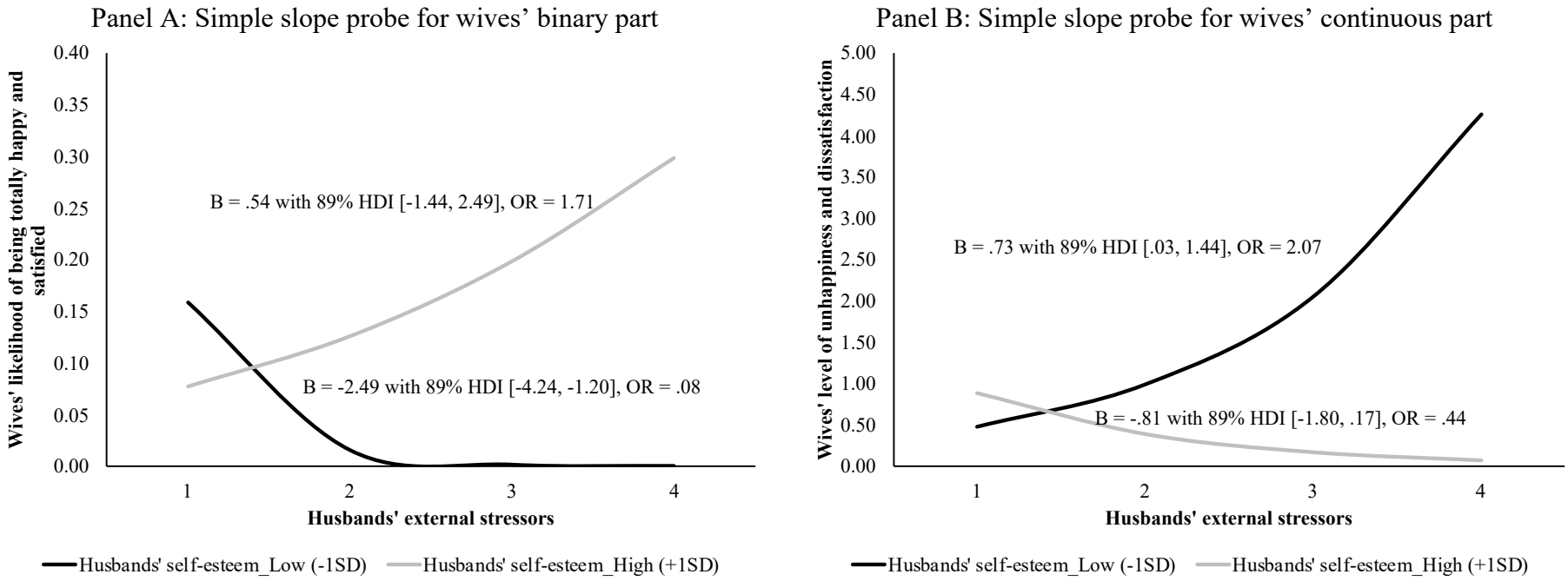
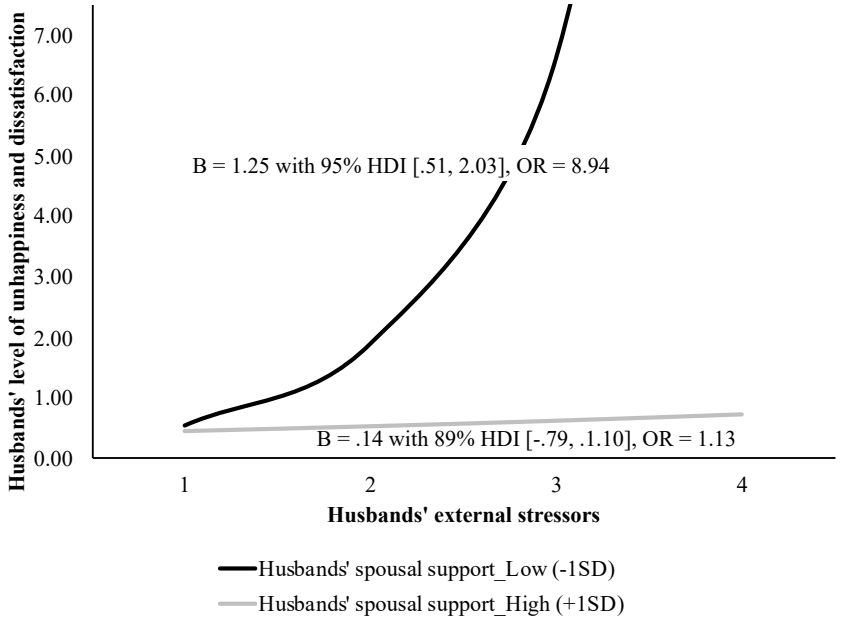


Figure 1 The simple slope probe for moderating roles for self-esteem for the binary and continuous parts of wives' marital quality in Study 1 (*N* = 268 Couples)

OR = odds ratio. For the simplification in presentation, I only presented the 89% HDI for the simple slope probed at low (-1 SD) and high (+1 SD) levels of moderators. When 0 was included in 89% HDI, I concluded that modest evidence can be found for a notable simple slope at high or low levels moderators. Otherwise, I concluded the simple slope at high or low levels of moderators was not different from 0.

Panel A: Simple slope probe moderating effects on stressors spillover



Panel B: Simple slope probe moderating effects on stressors crossover

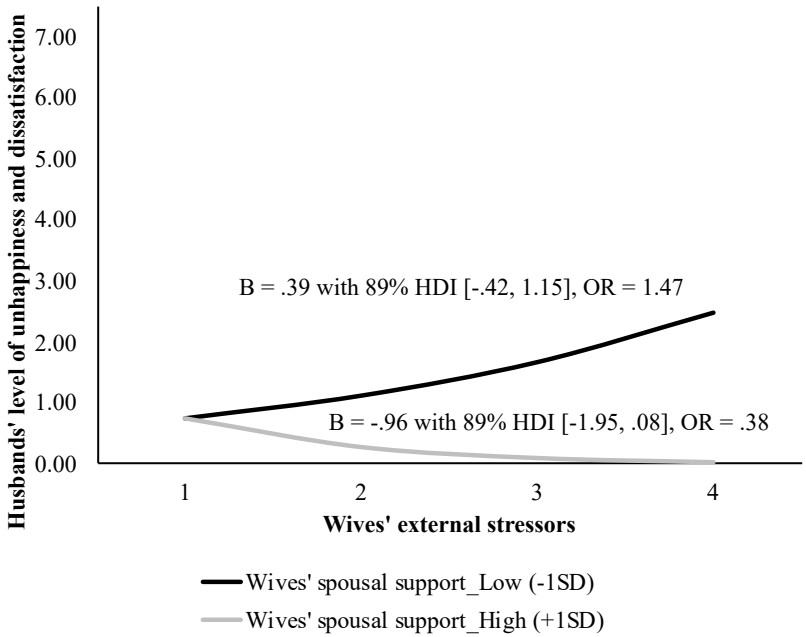


Figure 2 The simple slope probe for the moderating roles for spousal support for the continuous part of husbands' marital quality in Study 1 (*N* = 268 Couples)

OR = odds ratio. For the simplification in presentation, I only presented the 89% HDI for the simple slope probed at low (-1 SD) and high (+1 SD) levels of moderators. When 0 was included in 89% HDI, I concluded that modest evidence can be found for a notable simple slope at high or low levels moderators. Otherwise, I concluded the simple slope at high or low levels of moderators was not different from 0.

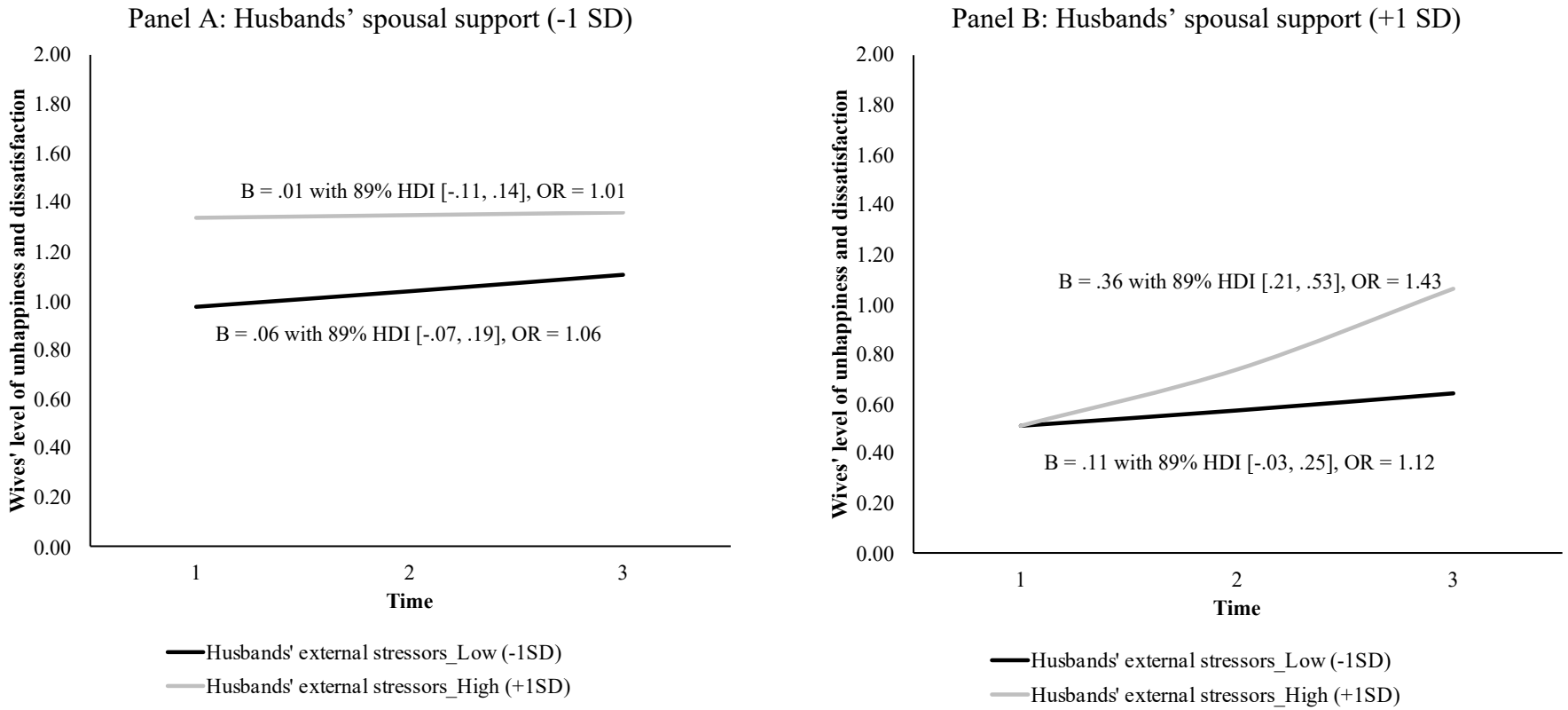


Figure 3 The simple slope probe for the moderating roles for spousal support for the continuous part of wives' marital quality in Study 1 (*N* = 268 Couples)

OR = odds ratio. For the simplification in presentation, I only presented the 89% HDI for the over-time development across time given specific combination of low (-1 SD)/high (+1 SD) levels of external stressors and spousal support. When 0 was included in 89% HDI, I concluded that modest evidence can be for an over-time increases/decreases in wives' levels of unhappiness and dissatisfaction. Otherwise, I concluded that wives' levels of unhappiness and dissatisfaction were relatively stable across time.

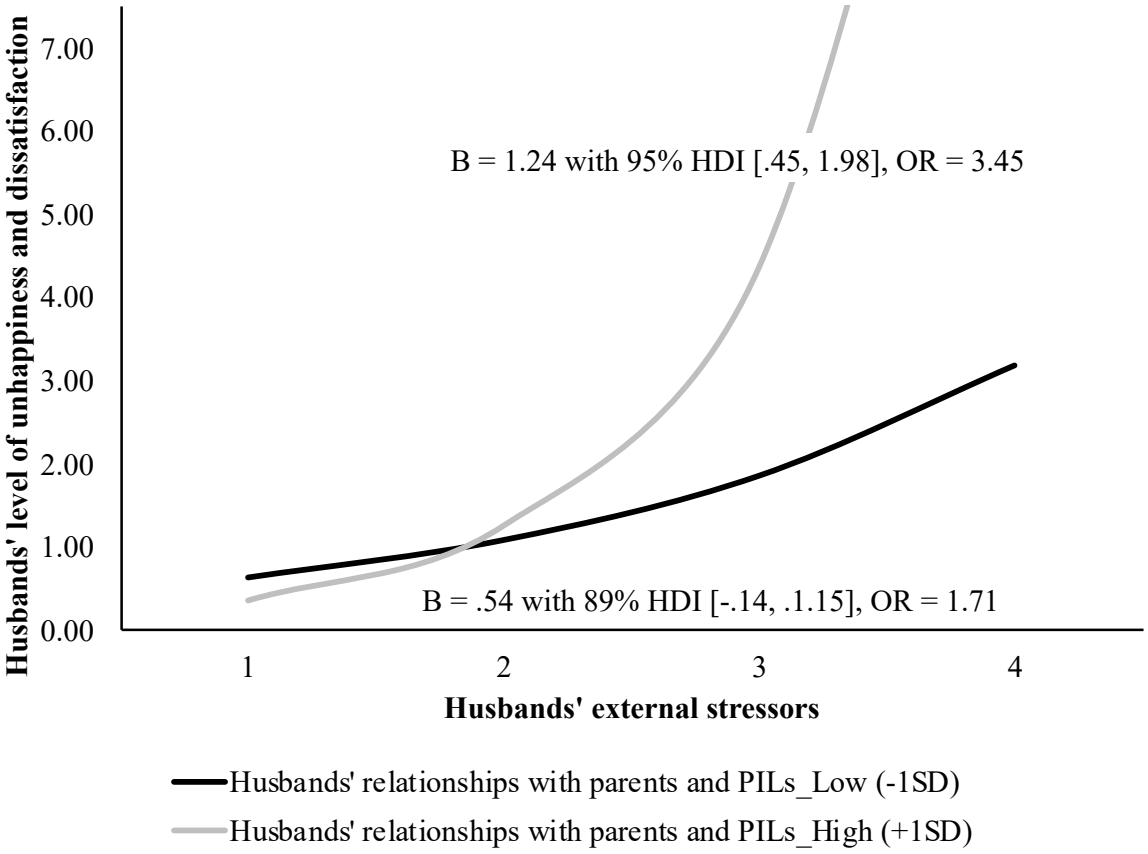


Figure 4 The simple slope probe for the moderating roles for relationships with parents and parents-in-law on continuous part of husbands' marital quality in Study 1 (*N* = 268 Couples) PILs = parents-in-law. OR = odds ratio.

OR = odds ratio. For the simplification in presentation, I only presented the 89% HDI for the simple slope probed at low (-1 SD) and high (+1 SD) levels of moderators. When 0 was included in 89% HDI, I concluded that modest evidence can be found for a notable simple slope at high or low levels moderators. Otherwise, I concluded the simple slope at high or low levels of moderators was not different from 0.

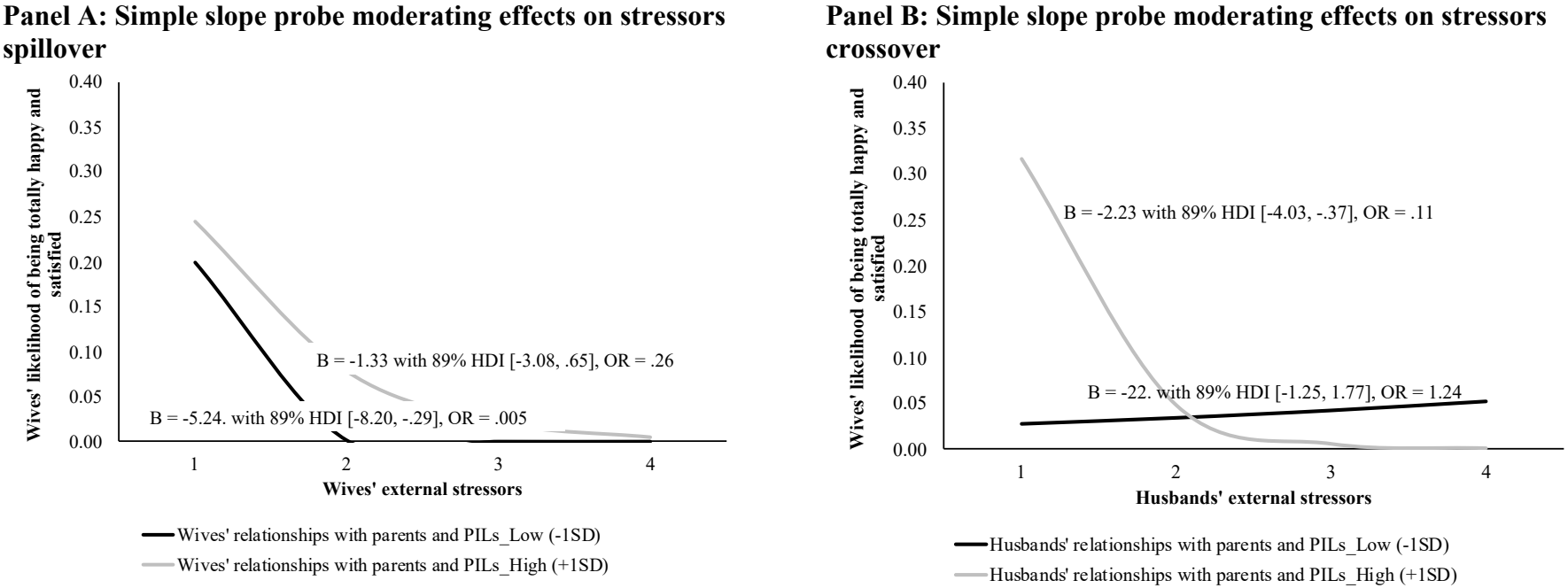
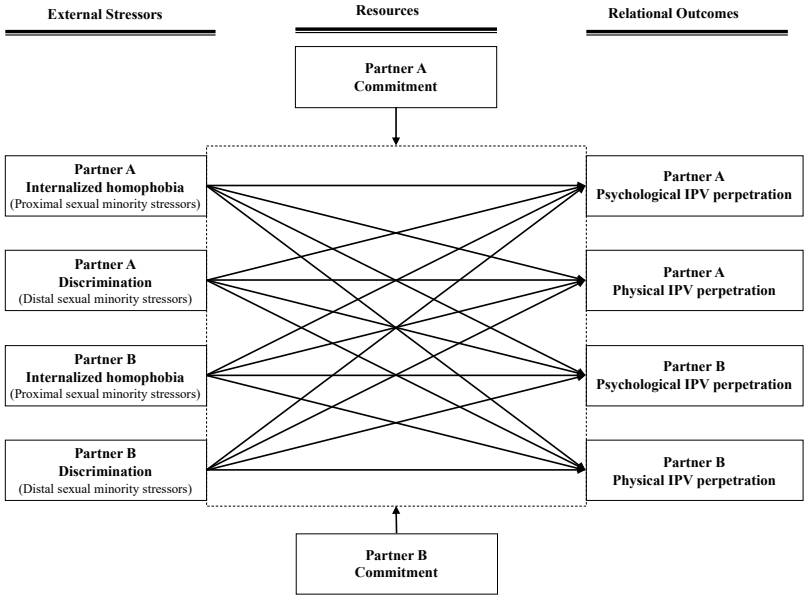


Figure 5 The simple slope probe for the moderating roles for relationships with parents and parents-in-law for the binary part of wives' marital quality in Study 1 (N = 268 Couples)

PILs = parents-in-law. OR = odds ratio. For the simplification in presentation, I only presented the 89% HDI for the simple slope probed at low (-1 SD) and high (+1 SD) levels of moderators. When 0 was included in 89% HDI, I concluded that modest evidence can be found for a notable simple slope at high or low levels moderators. Otherwise, I concluded the simple slope at high or low levels of moderators was not different from 0.

Panel A: The moderating hypothesis (complementary hypothesis 1)



Panel B: The mediating hypothesis (complementary hypothesis 2)

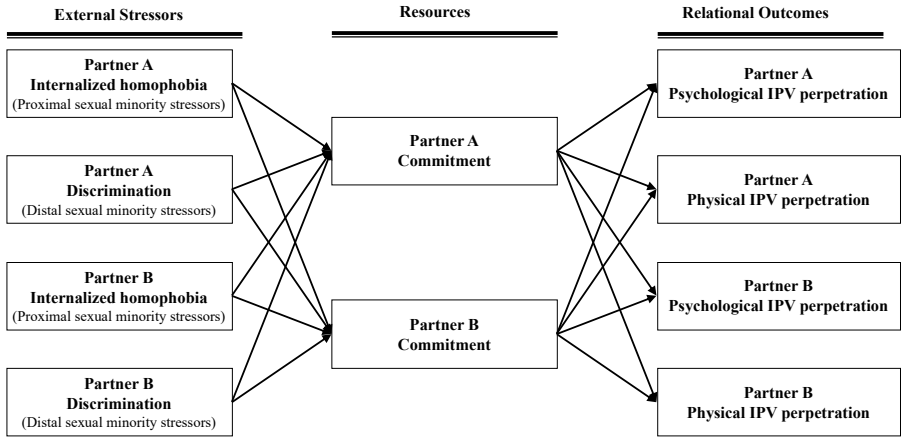


Figure 6 Conceptual model for Study 2 (N = 144 Couples)

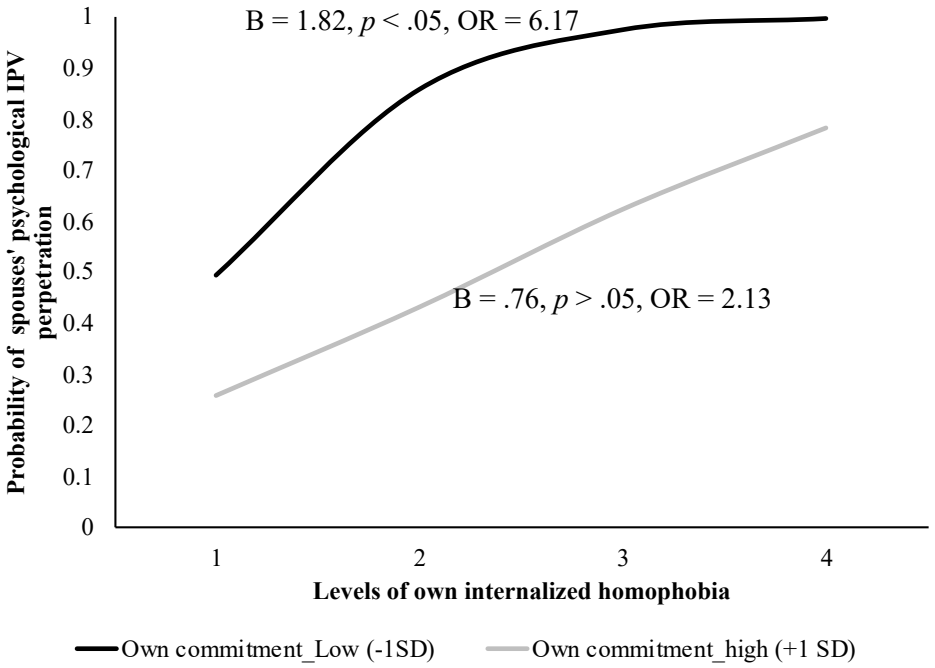


Figure 7 The simple slope probe for the moderating roles of individual's commitment in partner associations between individuals' internalized homophobia and spouses' psychological IPV perpetration occurrence in Study 2 (*N* = 144 Couples)
OR = Odds Ratio

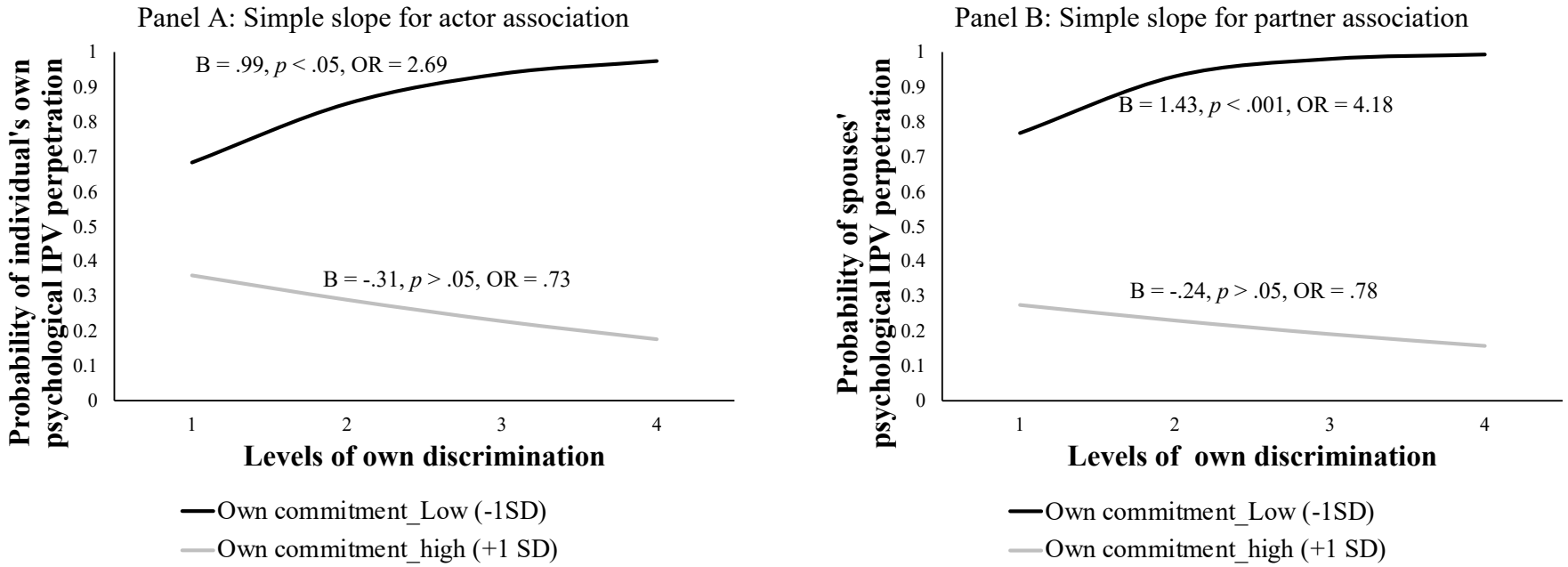


Figure 8 The simple slope probe for the interactions between discrimination and commitment for psychological IPV perpetration occurrence in Study 2 (N = 144 Couples)
OR = Odds Ratio

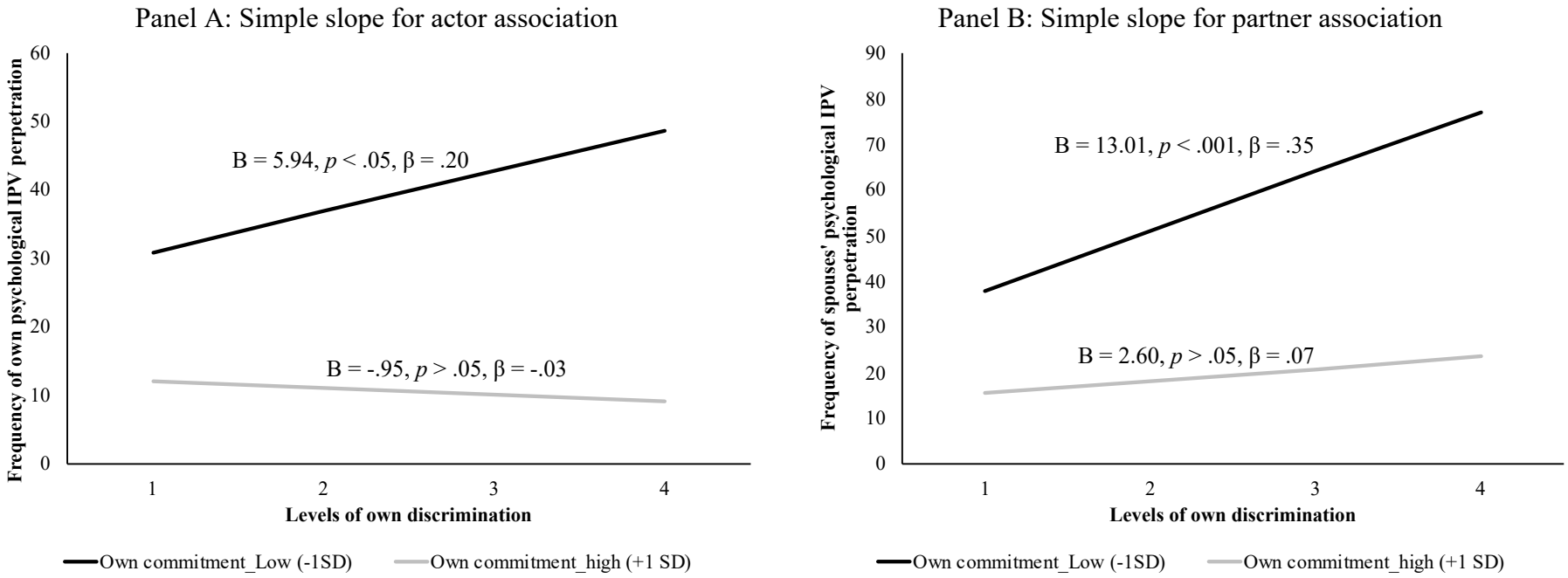
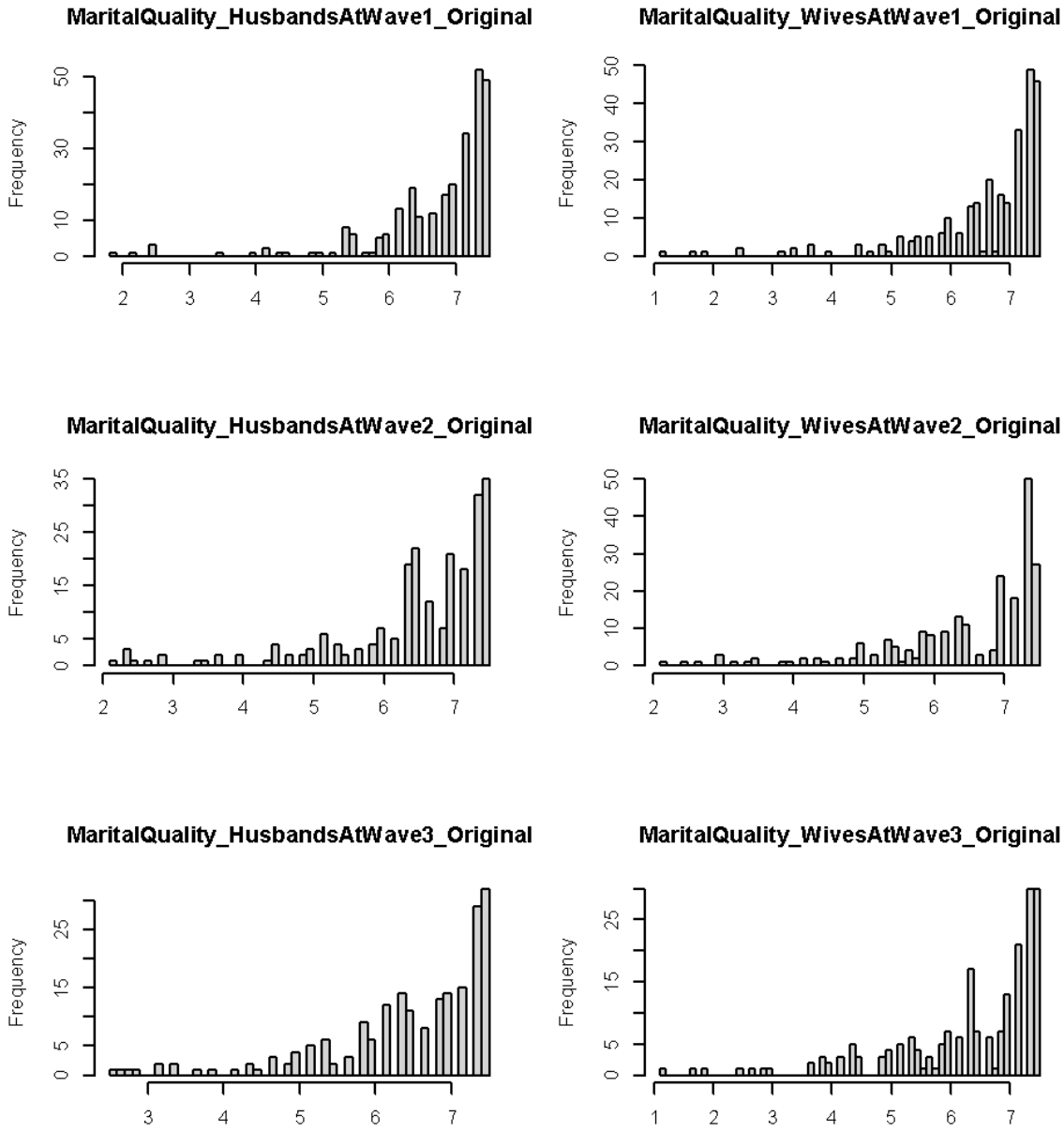


Figure 9 The simple slope probe for the interactions between discrimination and commitment for psychological IPV perpetration frequency in Study 2 (N = 144 Couples)

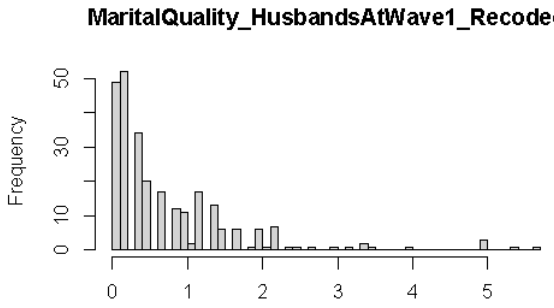
APPENDICES

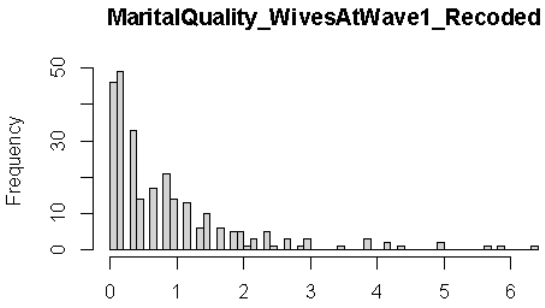
Appendix A Distribution of Outcomes in Study 1

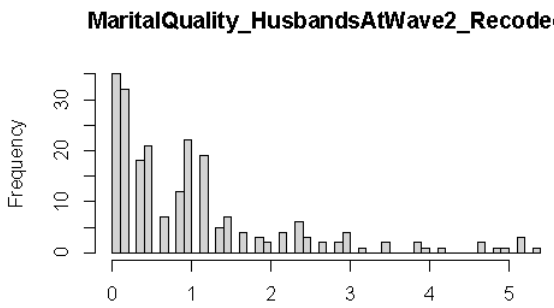
Panel A: Distribution of Original Scores for Marital Quality

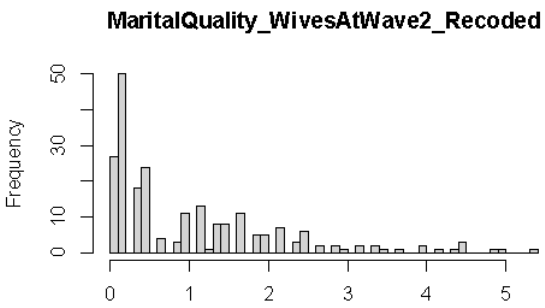


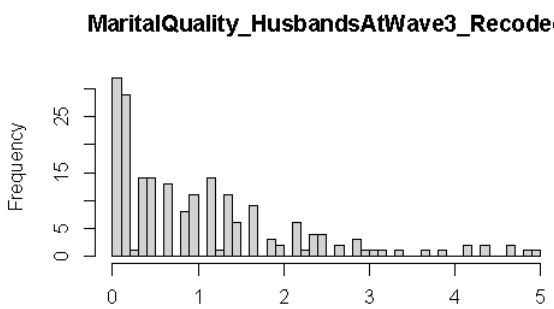
Panel B: Distribution of Recoded Scores for Marital Quality

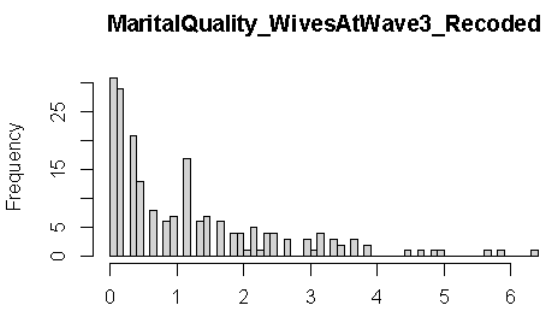












Appendix B Random Effects Specification in Study 1

I estimated the unconditional growth models with different sets of random effects. Seen in the table below, the complexity increases from Model 1a to Model 1c. Realizing that the random slope for the binary part in Model 1c was relatively small, I then simplified Model 1c to generate Model 1d. On the basis of Model 1d, I further tested in Model 1e whether it was necessary to distinguish the random slopes of husbands and wives. All five models converge well.

When selecting the optimal specification of random effects, I first considered whether every two sets of random effects were notably different in elpd Kfold. If the difference in elpd Kfold was larger than 2 SEs (i.e., similar to a *z* score that is larger than 2 and therefore meets the criteria of statistical significance), the elpd Kfold difference was regarded as notable. As such, the set with smaller eldp Kfold can then be considered notably better fitting on held-out data than the other set with larger eldp Kfold (the same logic applies to the following appendices as well).

As next steps, I then considered whether every two models yielded different R^2, which means that the set with the larger R^2 explained the training data notably better than the model with smaller R^2. To note, there is no theoretical guidance on how to specify the random effects for dyadic, longitudinal data. Thus, and if the two sets of random effects were equivalent in both eldp Kfold and R^2, I selected the parsimonious one.

As seen in the table below, Model 1d has the smallest elpd Kfold, which indicates that the cross-validation most prefers Model 1d. The simpler Model 1a and Model 1b were notably worse fitting than Model 1d on held-out data, as their difference in elpd Kfold from Model 1d was larger than 2 SEs. In addition, the R^2s of Model 1a and Model 1b were also notably smaller than Model 1d. Thus, and following the rationale above, Model 1a and Model 1b were discarded.

On the other hand, Model 1 c and Model 1e were equivalent to Model 1d on both the elpd Kfold and R^2. As Model 1d is the most parsimonious one, I selected it as the optimal specification of random effects.

Appendix Table 1 R2 and epld Kfold for unconditional growth models with different specification of random effects.

	Random effects for the binary part	**Random effects for the continuous part**	R^2 with 95% HDI	elpd Kfold (SE)	elpd difference from the model in the top row	SE of elpd difference
Model 1d **(model with smallest elpd)**	**Husbands' intercept** **Wives' intercept**	**Husbands' intercept** **Wives' intercept** **Slope of each couple**	**.49** **[.43, .54]**	**-1977.1** **(42.1)**	**--**	**--**
Model 1c	Husbands' intercept Wives' intercept Slope of each couple	Husbands' intercept Wives' intercept Slope of each couple	.49 [.44, .54]	-1991.1 (42.2)	-14.0 (1.53 SEs of elpd difference)	9.1
Model 1e	Husbands' intercept Wives' intercept	Husbands' intercept Wives' intercept Husbands' slope Wives' slope	.49 [.42, .54]	-1993.4 (42.7)	-16.3 (1.59 SEs of elpd difference)	10.2
Model 1b	Husbands' intercept Wives' intercept	Husbands' intercept Wives' intercept	.44 [.38, .49]	-2001.1 (43.0)	-24.0 (2.12 SEs of elpd difference)	11.3
Model 1a	Intercept of each couple	Intercept of each couple	.34 [.29, .40]	-2036.1 (40.3)	-58.9 (4.30 SEs of elpd difference)	13.7

Note. HDI = High density interval, elpd Kfold = expected log predictive density for k-fold cross-validation (K=10 in the present study), and SE = standard error. Bolded is the optimal model.

Appendix C Specification and Selection for Spillover and Crossover Effects Models in Study 1

Informed by the difference between binary and continuous parts in the unconditional growth model, I explored whether to specify the spillover and crossover effects model differently for the binary and continuous parts.

Given the well-documented associations between external stressors and relationship quality, I deemed it necessary to include at least the main effects of own external stressors and partner's external stressors in both the binary and continuous parts. Yet, it may be worthy of investigating whether the interaction between time and own external stressors and the interaction between time and partner's external stressors may differ between binary and continuous parts of the model.

To test this speculation, I specified Model 2a to test the interaction between time and own external stressors and the interaction between time and partner's external stressors on the binary part of marital quality. Model 2b was then specified to test the interaction between time and own external stressors and the interaction between time and partner's external stressors on the continuous part of marital quality. The interactive effect between time and own external stressors and the interactive effect between time and partner's external stressors were not notable for either the binary or the continuous parts. I then trimmed all interactive terms off to generate the simplified Model 2c.

When selecting the optimal model testing the spillover and cross-over effects of external stressors, I first considered whether every two sets of random effects were notably different in elpd Kfold (i.e., the difference is larger 2 SEs). This means that the set with smaller eldp Kfold was notably better fitting on held-out data than the other set. I then considered whether every two models yielded notably different R^2, which means the set with larger R^2 explained the training data notably better than the other. To note, the theoretical

perspective has been well-established that external stressors are associated with both the levels and the developmental trajectories of marital quality.Said another way, the main effects of external stressors and the interactive terms between external stressors and time are both theoretically plausible; Neff & Karney, 2007; Lavner, Bradbury, & Karney, 2012. As such, and if two models were equivalent in both eldp Kfold and R^2, I selected the one that fits the theory.

As seen in the table below, Model 2a was notably worse fitting on held-out data than Model 2b and Model 2c, as differences in elpd Kfold from Model 2b and Model 2c were larger than 2 SEs. As such, Model 2a was discarded.

On the other hand, Model 2b and Model 2c were equivalent in both the elpd Kfold and R^2. Given the aforementioned theory (Lavner et al., 2012; Neff & Karney, 2007;), Model 2b was selected as the optimal model testing the spillover and crossover effects of external stressors.

Appendix Table 2 R2 and epld Kfold for spillover and crossover effects models with different set of interactive terms.

	Fixed effects for the binary part	**Fixed effects for continuous part**	R^2 with 95% HDI	elpd Kfold (SE)	elpd difference from the model in the top row	SE of elpd difference
Model 2c (model with smallest elpd)	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time) + π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors)	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time) + π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors)	.50 [.45, .55]	-1959.9 (41.9)	--	--
Model 2b	**π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time)** **+ π2_husbands (own external stressors)** **+ π2_wives (own external stressors)** **+ π3_husbands (partner's external stressors)** **+ π3_wives (partner's external stressors)**	**π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time)** **+ π2_husbands (own external stressors)** **+ π2_wives (own external stressors)** **+ π3_husbands (partner's external stressors)** **+ π3_wives (partner's external stressors)** **+ π4_husbands (own external stressors × time)** **+ π4_wives (own external stressors × time)** **+ π5_husbands (partner's external stressors × time)** **+ π5_wives (partner's external stressors × time)**	**.51 [.45, .56]**	**-1963.5 (43.0)**	**-3.6 (.41 SE of elpd difference)**	**8.8**

Model 2a	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time) + π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors) + π4_husbands (own external stressors × time) + π4_wives (own external stressors × time) + π5_husbands (partner's external stressors × time) + π5_wives (partner's external stressors × time)	π0_husbands + π0_wives + π1_husbands (time) + π1_wives (time) + π2_husbands (own external stressors) + π2_wives (own external stressors) + π3_husbands (partner's external stressors) + π3_wives (partner's external stressors)	.50 [.45, .55]	-1982.0 (42.0)	-22.1 (2.43 SEs of elpd differences)	9.1

Note. HDI = High density interval, elpd Kfold = expected log predictive density for k-fold cross-validation (K=10 in the present study); SE = standard error.

Appendix D Covariates Selection for Study 1

To examine whether and which covariates should be added to the model, I started with Model S1 (i.e., a model included all covariates as fixed predictors). Several notable effects emerged for the binary and continuous parts, respectively. I then trimmed off covariates without notable effects and generated Model S2. A model without covariates (i.e., unconditional growth model; Model 1d in Appendix A) was also included as the reference level.

When selecting the optimal specification of covariates to be included, I first considered whether every two sets of random effects were notably different in elpd Kfold (i.e., the difference is larger 2 SEs). This means that the set with smaller eldp Kfold is notably better fitting on held-out data than the other. I then considered whether every two models yielded notably different R^2, which means the set with larger R^2 explained the training data notably better than the other. To note, none of the covariates was of research foci, and I did not have specific theoretical considerations to include them in analyses. As such, and if two models were equivalent in both eldp Kfold and R^2, I selected the parsimonious one.

As seen in the table below, all three models were equivalent in elpd Kfold and R^2. As Model 1d is the most parsimonious one, this is the one I selected. I then discarded Model S1 and Model S2 and decided not to include any covariates in the analyses.

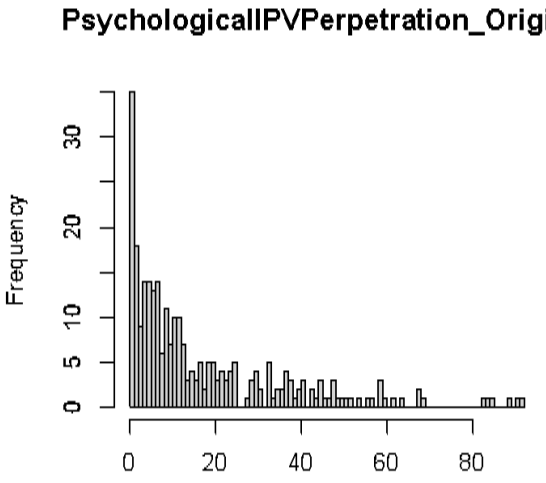
Appendix Table 4 R2 and epld Kfold for unconditional growth models with different set of covariates.

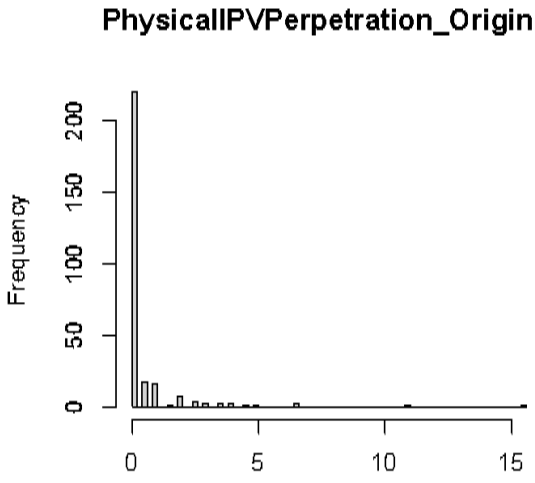
	Fixed effects for the binary part	**Fixed effects for continuous part**	R^2 with 95% HDI	elpd Kfold (SE)	elpd difference from the model in the top row	SE of elpd difference
Model 1d (model with smallest elpd)	**$\pi_{0\_husbands}$ + π0_wives + $\pi_{1\_husbands}$ (time) + π_{1_wives} (time)**	**$\pi_{0\_husbands}$ + π0_wives + $\pi_{1\_husbands}$ (time) + π_{1_wives} (time)**	**.49 [.43, .54]**	**-1977.1 (42.1)**	**--**	**--**
Model S2	$\pi_{0\_husbands}$ + π0_wives + $\pi_{1\_husbands}$ (time) + π_{1_wives} (time) + π4_husbands (Parental status) + π4_wives (Parental status) + π9_husbands (own income) + π9_wives (own income)	$\pi_{0\_husbands}$ + π0_wives + $\pi_{1\_husbands}$ (time) + π_{1_wives} (time) + π3_husbands (Marital length) + π3_wives (Marital length) + π4_husbands (Parental status) + π4_wives (Parental status) + π6_husbands (partner's age) + π6_wives (partner's age) + π9_husbands (own income) + π9_wives (own income)	.50 [.44, .55]	-1996.4 (43.1)	-13.6 (1.17 SEs of elpd differences)	11.7

Model S1	$\pi_{0\_husbands}$ + π0_wives + $\pi_{1\_husbands}$ (time) + π_{1_wives} (time) + π2_husbands (Cohabiting before marriage) + π2_wives (Cohabiting before marriage) + π3_husbands (Marital length) + π3_wives (Marital length) + π4_husbands (Parental status) + π4_wives (Parental status) + π5_husbands (Own age) + π5_wives (Own age) + π6_husbands (partner's age) + π6_wives (partner's age) + π7_husbands (own education) + π7_wives (own education) + π8_husbands (partner's education) + π8_wives (partner's education) + π9_husbands (own income) + π9_wives (own income) + π10_husbands (partner's income) + π10_wives (partner's income)	$\pi_{0\_husbands}$ + π0_wives + $\pi_{1\_husbands}$ (time) + π_{1_wives} (time) + π2_husbands (Cohabiting before marriage) + π2_wives (Cohabiting before marriage) + π3_husbands (Marital length) + π3_wives (Marital length) + π4_husbands (Parental status) + π4_wives (Parental status) + π5_husbands (Own age) + π5_wives (Own age) + π6_husbands (partner's age) + π6_wives (partner's age) + π7_husbands (own education) + π7_wives (own education) + π8_husbands (partner's education) + π8_wives (partner's education) + π9_husbands (own income) + π9_wives (own income) + π10_husbands (partner's income) + π10_wives (partner's income)	.50 [.44, .55]	-1996.5 (43.1)	-13.7 (1.17 SEs of elpd differences)	11.7

Note. For random effects that help to account for the non-independence of dyadic, longitudinal data, cross validation suggested the follow. For the binary part, a random intercept for husbands and a random intercept for wives were both included for all models listed in Table 2. For the continuous part, a random intercept for husbands, a random intercept for wives, and a random slope for dyads were included for all models listed in Table 2. Detailed information for the specification of random effects can be seen in Appendix B.
HDI = High density interval, elpd Kfold = expected log predictive density for k-fold cross-validation (K=10 in the present study), and SE = standard error. Bolded is the optimal model.

Appendix E Distribution of Outcomes (IPV) in Study 2





Appendix F Models including Non-Zero Part of Physical IPV perpetration in Study 2

Appendix Table 4 Moderating models including non-zero part of physical IPV perpetration in Study 2 (N = 144 Couples)

	Panel A: Commitment moderating the effects of IHP				**Panel B: Commitment moderating the effects of discrimination**			
	Psychological IPV		***Physical IPV***		***Psychological IPV***		***Physical IPV***	
	Occurrence [1] B (Odd ratio)	Frequency B (β)	Occurrence [1] B (Odd ratio)	Frequency B (β)	Occurrence [1] B (Odd ratio)	Frequency B (β)	Occurrence [1] B (Odd ratio)	Frequency B (β)
Own IHP	1.04 (2.82)	.90 (.04)	.03 (1.03)	.77 (.26) *	1.14 (3.13) *	.92 (.04)	-.01 (.99)	.67 (.23) *
Partner's IHP	1.04 (2.83)	.76 (.03)	-.03 (.98)	.49 (.16)	.92 (2.51)	.87 (.04)	-.01 (.99)	.36 (.12)
Own discrimination	-.07 (.93)	.88 (.03)	.47 (1.59)	.69 (.17)	.05 (1.05)	.91 (.03)	.41 (1.51)	.71 (.17)
Partner's discrimination	-.23 (.79)	5.05 (.13) *	.52 (1.68)	-.09 (-.02)	.22 (1.25)	5.41 (.14) *	.47 (1.60)	-.10 (-.02)
Own commitment	.55 (1.73)	-7.84 (-.20) **	-1.03 (.36) *	1.18 (.23) *	.51 (1.67)	-7.96 (-.21) **	-.90 (.41) *	1.09 (.21)
Partner's commitment	-.64 (.53)	-8.11 (-.21) **	-.92 (.40) **	.70 (.14)	-.37 (.69)	-7.06 (-.18) **	-.88 (.42) *	1.04 (.20)
Own IHP × Own commitment	-.32 (.73)	-1.02 (-.03)	.28 (1.32)	.42 (.09)	--	--	--	--
Partner's IHP × Partner's commitment	-1.36 (.26)	.63 (.01)	.04 (1.04)	.46 (.07)	--	--	--	--
Own discrimination × Own commitment	--	--	--	--	-1.72 (.18)	-8.66 (-.15) *	-.63 (.53)	-.27 (-.04)
Partner's discrimination × Partner's commitment	--	--	--	--	-2.19 (.11)	-12.97 (-.15) **	-.62 (.54)	-1.42 (-.13)
R^2	.52	.17	.22	.32	.53	.22	.20	.35

Note. [1] For ease of interpretation, the coefficients for the binary part now indicate the effects of the likelihood of IPV perpetration occurrence. IHP = internalized homophobia. * $p < .05$, ** $p < .01$ (two-tailed).

Appendix Table 6 Mediating model including non-zero part of physical IPV perpetration in Study 2 (*N* = 144 Couples)

	Predictive pathways to commitment	**Predictive pathways to IPV perpetration**			
		Psychological IPV		***Physical IPV***	
	B (β)	Occurrence [1] B (Odd ratio)	Frequency B (β)	Occurrence [1] B (Odd ratio)	Frequency B (β)
Own internalized homophobia	-.10 (-.17) **	1.05 (2.84) *	.91 (.04)	-.02 (.98)	.65 (.22) *
Partner's internalized homophobia	-.05 (-.09)	.88 (2.41)	.80 (.04)	-.02 (.98)	.37 (.13)
Own discrimination	.03 (.04)	-.05 (.95)	.76 (.03)	.47 (1.61)	.69 (.14)
Partner's discrimination	.17 (.17) **	-.22 (.80)	5.13 (.14) *	.51 (1.66)	-.07 (-.02)
Own commitment	--	.53 (1.70)	-8.29 (-.21) ***	-.95 (.39) **	1.18 (.24) *
Partner's commitment	--	-.07 (.93)	-7.79 (-.20) **	-.92 (.40) **	.70 (.14)
R^2	.06	.44	.15	.16	.27

Note. [1] For ease of interpretation, the coefficients for the binary part now indicate the effects on the likelihood of IPV perpetration occurrence. * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).

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