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# How Implicit Theories of Sexuality Shape Sexual and Relationship Well-Being

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How do people believe they can best maintain sexual satisfaction in their romantic relationships? In the current research, we draw upon the literature on implicit theories of relationships to develop and validate a scale examining 2 types of lay beliefs about how sexual satisfaction can be maintained over time. Individuals high in *sexual growth beliefs* think that sexual satisfaction is attained from hard work and effort, whereas individuals high in *sexual destiny beliefs* think that sexual satisfaction is attained through finding a compatible sexual partner. Across 6 studies (2 cross-sectional online studies, a 21-day daily experience study, 2 dyadic studies, and an experimental manipulation;  $N = 1,896$ ), we find evidence that those higher in sexual growth beliefs experience higher relationship and sexual satisfaction, and have partners who are more satisfied. Conversely, the effects of sexual destiny beliefs on satisfaction are contingent upon signs of partner compatibility: When individuals high in sexual destiny beliefs experience greater sexual disagreements in their relationship, they experience lower relationship quality. These results are independent of general relationship implicit beliefs, providing evidence for the uniqueness of these 2 constructs and the importance of examining implicit beliefs in the domain of sexuality. Overall, these results provide novel evidence that individuals' lay beliefs about maintaining sexual satisfaction are important for understanding the quality of their sex lives and relationships.

**Keywords:** destiny beliefs, growth beliefs, implicit theories, sexual satisfaction

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Popular media perpetuates the idea that a fulfilling sex life is easy to maintain if your romantic partner is truly “meant for you” (Galician, 2004). However, in reality, sex is not always easy or

fulfilling, as many couples struggle to maintain sexual satisfaction and frequency in long-term romantic relationships (e.g., Klusmann, 2002; Sprecher, 2002; Yabiku & Gager, 2009). What are people's lay theories about how they can achieve sexual satisfaction and how are these beliefs associated with their sexual and relationship satisfaction? Does internalizing the media's assertion that finding the “right” partner will lead to a happy sex life foster satisfaction? Or is believing that sexual satisfaction takes work more likely to foster satisfaction? In the current research, we draw on the literature on implicit theories of relationships (Knee, 1998) to examine the role of individuals' lay beliefs about maintaining sexual satisfaction in shaping sexual and relationship well-being. We introduce and examine the consequences of two different types of beliefs about sexual relationships: *sexual growth beliefs* and *sexual destiny beliefs*. Sexual growth beliefs indicate that sexual satisfaction requires effort and work to maintain over the course of time in relationships. In contrast, sexual destiny beliefs indicate that natural compatibility between sexual partners is the key factor that allows couples to maintain sexual satisfaction, and that struggles in a sexual relationship suggest the relationship is destined to fail. The goal of the present research is to adapt existing implicit theory measures to create a scale to assess sexual growth and sexual destiny beliefs in order to understand how these beliefs contribute to sexual and relationship satisfaction.

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## Implicit Beliefs in Relationships

A large body of work has examined the effects of individuals' basic beliefs, or implicit theories, about whether people can change their internal attributes (*incremental beliefs*), or whether internal attributes are relatively fixed (*entity beliefs*; Dweck, Chiu, & Hong, 1995; see review by Dweck, 2011). Numerous studies have documented that implicit theories of the fixedness/malleability of attributes shape a wide range of behaviors, including academic achievement (Blackwell, Trzesniewski, & Dweck, 2007; Robins, & Pals, 2002), health choices (Yeager et al., 2014), self-regulation (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2013), aggression (Yeager, Trzesniewski, & Dweck, 2013), memory (Plaks & Chasteen, 2013), and basic person perception processes (Molden, Plaks, & Dweck, 2006; Xu & Plaks, 2015; for a review, see Plaks, Levy, & Dweck, 2009). People's theories about fixedness/malleability have been examined in several domains including personality (e.g., Chiu, Hong, & Dweck, 1997), intelligence (e.g., Blackwell et al., 2007), emotion regulation (e.g., Tamir, John, Srivastava, & Gross, 2007), and will power (Job, Dweck, & Walton, 2010). Scholars have also adapted these concepts to the context of close relationships to examine how people's lay beliefs about what makes for a satisfying romantic partnership, termed implicit theories of relationships (ITRs), influence individuals' motivations, behaviors, and attributions in romantic relationships (e.g., Franiuk, Cohen, & Pomerantz, 2002; Knee, 1998; Knee, Patrick, & Lonsbary, 2003; see review by Knee & Canevello, 2006). This research suggests that relationship satisfaction can be shaped both by the extent to which individuals believe in the importance of compatibility, *destiny beliefs*, and the extent to which they think they can work to improve their relationships over time, *growth beliefs*. More specifically, destiny beliefs, also referred to as soulmate theories (Franiuk et al., 2002), reflect the idea that relationship success is based on whether romantic partners are destined to be compatible, and that one can immediately diagnose the potential of a relationship to last. Growth beliefs, or work-it-out theories (Franiuk et al., 2002), encompass the notion that relationship challenges can be overcome, and that the success of relationships is determined by effort and hard work. Destiny and growth beliefs about romantic relationships are theoretically and statistically independent constructs, meaning that individuals can be high or low on both destiny and growth beliefs (Knee, 1998; Knee et al., 2003).

Past studies suggest that growth and destiny beliefs can shape important relationship outcomes (see review by Knee & Canevello, 2006). In this work, higher (relative to lower) growth beliefs have been linked with the extent to which people believe that their partner is capable of changing their faults (Knee et al., 2003), maintain positive emotion following disagreements (Knee, Nanayakkara, Vietor, Neighbors, & Patrick, 2001), and remain committed to their relationship despite experiencing conflict (Knee, Patrick, Vietor, & Neighbors, 2004). In contrast, research suggests that those who espouse destiny beliefs may face poorer relationship outcomes in threat contexts; for example, relative to those lower in destiny beliefs, individuals higher in destiny beliefs have more negative reactions to conflict and interpret conflict as a sign they are incompatible with their partner (Knee, 1998; Knee et al., 2003). These differences in outcomes between implicit theories may emerge because high growth believers think that love can be nurtured, and hence do not place a high emphasis on compatibility, whereas those high in destiny beliefs value finding an ideal compatible partner. In research where individ-

uals were induced to have either high growth or high destiny beliefs, those induced to hold growth beliefs had relationship satisfaction levels that were not contingent on how ideal they had previously rated their partner; however, those induced with destiny beliefs showed a strong positive association between how ideal they perceived their partner and their current satisfaction levels (Franiuk, Pomerantz, & Cohen, 2004). Further, in a sample of undergraduate students assessed over a 2-month period, whether or not their relationship ended was more strongly linked to initial satisfaction levels for individuals higher (relative to lower) in destiny beliefs, suggesting individuals high in destiny beliefs are more reactive to partner compatibility levels (Knee, 1998). However, when they are more confident, relative to less confident, that their current partner is their ideal match or "soulmate," those higher in destiny beliefs may show enhanced relationship outcomes relative to those lower in destiny beliefs, such as being more willing to forgive a partner's recent transgression (Burnette & Franiuk, 2010). In a similar vein, after receiving bogus feedback that their relationship had a low chance of success, those induced to hold destiny beliefs and who felt they were with an ideal partner showed more positive relationship distortions (such as exaggerating a partner's strengths and refuting their weaknesses), whereas those who were induced to hold destiny beliefs and were less confident their partner was ideal showed negative relationship distortions (such as exaggerating a partner's weakness or refuting their strengths; Franiuk et al., 2004). These findings suggest that destiny believers can overcome threats to their relationships just like growth believers—but only if they feel compatible. In sum, several findings suggest that the effect of destiny beliefs but not growth beliefs on relationship well-being is moderated by how certain the individual is that their partner is a good "fit" (see Knee & Canevello, 2006).

## Maintaining Sexual Satisfaction

Although past research illustrates the value of implicit beliefs about romantic relationships in understanding relationship functioning, no existing research has examined people's lay beliefs about what it takes to maintain sexual satisfaction in romantic relationships. In examining sexuality more broadly, two studies have findings related to implicit theories. One recent study examined implicit theories of attraction (Bohns, Scholer, & Rehman, 2015), adapted based on the unidimensional implicit theory literature. This work focused on perceptions of whether or not people can change sexual chemistry (e.g., "To be honest, you can't really change the sexual chemistry you have with someone"). We instead focus on beliefs about *how* you can maintain sexual satisfaction (e.g., "A satisfying sexual relationship evolves through hard work and resolution of incompatibilities") in the context of existing long-term romantic relationships (and not beliefs about attraction/sexual chemistry). That is, although implicit theories of attraction capture attitudes about whether or not sexual chemistry can be changed, they do not focus on concretely *how* this could be achieved (i.e., the role of working through incompatibilities; sexual growth beliefs, vs. finding a compatible partner; sexual destiny beliefs). Thus, unidimensional implicit theories of attraction differ both conceptually and statistically from our proposed implicit theories of sexual satisfaction, which we conceptualize as bidimensional (Knee et al., 2003). Importantly, by conceptualizing implicit theories of sexuality as two separate dimensions (i.e., growth and destiny), individuals can vary on both dimensions. This means that we allow for the possibility that sexual destiny believers can be willing to put effort

into their sex lives under certain circumstances: when they are confident they are with a compatible match (tested in Study 6). This hypothesis is aligned with the aforementioned work showing destiny believers display relationship-enhancing behaviors when confident they are with a good partner (Burnette & Franiuk, 2010; Franiuk et al., 2004). A second relevant study has reported that growth beliefs are associated with fewer one-night stands, especially for women (Knee, 1998), however, our focus here is on understanding the role of implicit beliefs about sexuality in shaping outcomes in committed sexual relationships. We propose that understanding the extent to which people view sexual satisfaction as requiring effort and work (i.e., sexual growth beliefs) and the extent to which they view sexual satisfaction as the result of natural compatibility between partners (i.e., sexual destiny beliefs) will enable us to understand why some couples feel more satisfied with their sex lives and their relationships while others do not.

Perhaps no other relationship domain involves more interdependence between partners than the domain of sexuality, given that the majority of long-term couples are monogamous and therefore cannot—or are not allowed to—get their sexual needs met outside of their current relationship (Blanchflower & Oswald, 2004). As such, partners in ongoing, committed relationships often rely on one another exclusively for sexual fulfillment, setting the sexual realm apart from other relationship domains in which partners are able to get their emotional and social needs met by people outside the relationship. For example, whereas only a subset of people in romantic relationships are permitted to pursue sexual activities with additional partners (e.g., Rubin, Moors, Matsick, Ziegler, & Conley, 2014), most people are permitted to pursue leisure activities with family members and friends, and to rely on members of their broader social network for emotional support (e.g., Amato, 2009; Doherty & Feeney, 2004; Gerstel & Sarkisian, 2006; although people are increasingly relying on their romantic partner to meet these needs—see Finkel, Hui, Carswell, & Larson, 2014). Although sexual attraction/desire is often the defining feature of what distinguishes romantic relationships from other close relationships (e.g., Fehr, 2013; Meyers, & Berscheid, 1997; Regan, 1998; Regan, Kocan, & Whitlock, 1998; Shaver, & Hazan, 1988), maintaining sexual satisfaction is challenging; it is common for sexual satisfaction to decline over time in both undergraduate samples (Klusmann, 2002; Sprecher, 2002), and married couples (McNulty, Wenner, & Fisher, 2016), and during periods of transition such as the transition to parenthood (see review by Haugen, Schmutzer, & Wenzel, 2004). It is critical to understand how couples can maintain sexual satisfaction over time because sexual satisfaction is often closely tied to overall relationship quality (e.g., Sprecher, 1994; Yabiku & Gager, 2009; Yeh, Lorenz, Wickrama, Conger, & Elder, 2006). For example, changes in a person's feelings of sexual satisfaction predict changes in marital satisfaction over time (and reciprocally, changes in marital satisfaction predict changes in sexual satisfaction over time; McNulty et al., 2016). Given that sexuality is an important and emotionally charged domain of relationships (e.g., Metts & Cupach, 1989), it is critical to understand individuals' lay beliefs about how sexual satisfaction can be achieved, as an understanding of these beliefs may have unique potential to inform our understanding of how couples maintain sexual and relationship quality over time.

It is important to examine beliefs about maintaining sexual satisfaction apart from beliefs about maintaining relationship satisfaction (relationship implicit theories) as sexual and relationship satisfaction,

although related, are distinct constructs. For example, researchers performed a cluster analysis on women's sexual and relationship satisfaction and found that there were groups of women who were satisfied with their relationships but not their sex lives, and vice versa (Apt, Huribert, Pierce, & White, 1996). Similarly, sexual chemistry can theoretically be conceptualized as distinct from relationship satisfaction, as clinical experience suggests that there are couples who are satisfied with their relationship but lack sexual chemistry, or are satisfied with their sexual chemistry but are not very satisfied with their relationship (Leiblum & Breznsnyak, 2006). Divergent sexual and relationship satisfaction can be understood given that the sexual behavioral system is distinct from—although related to—the broader relational systems of attachment and caregiving (e.g., Diamond, 2013; Shaver, Hazan, & Bradshaw, 1988). Whereas sexual desire tends to peak very early on in relationships (e.g., Baumeister & Bratslavsky, 1999; Sprecher & Regan, 1998), attachment and caregiving systems tend to increase more gradually—theorized to take between a year and half to three years to develop (e.g., Tennov, 1979; Winston, 2004). Although both sexual and relationship satisfaction tend to decline over the course of a relationship on average (e.g., McNulty et al., 2016), sexual satisfaction may decline earlier—starting after just one year of dating (Schmiedeberg, & Schröder, 2016), whereas recent evidence indicates that the majority of couples can maintain stable relationship satisfaction 2.5 years into their marriage (Lorber, Erlanger, Heyman, & O'Leary, 2015) and even longer (Anderson, Van Ryzin, & Doherty, 2010). Thus, if sexual and relationship satisfaction tend to follow different trajectories over the course of a relationship, it is possible that lay people have different expectations for normative changes in each form of satisfaction. Likewise, sexual satisfaction has different outcomes and predictors than relationship satisfaction. For example, in newlywed couples current sexual satisfaction, but not current relationship satisfaction, positively predicted changes in sexual frequency 6 to 8 months later (McNulty et al., 2016). When entered simultaneously, for men, low sexual—but not relationship—satisfaction predicted subsequent romantic break-up in dating couples (Sprecher, 2002). Further, some variables that have been robustly negatively associated with sexual satisfaction such as age and religiosity (see Sánchez-Fuentes, Santos-Iglesias, & Sierra, 2014 for a review), may actually have *positive* associations with relationship satisfaction (e.g., Levenson, Carstensen, & Gottman, 1993; Mahoney et al., 1999). Hence, if different variables do indeed facilitate the two types of satisfaction, it is reasonable to assume that people's expectations about maintaining sexual satisfaction may differ from what is believed to maintain relational satisfaction, and hence sexual beliefs may predict sexual and relationship satisfaction above and beyond implicit beliefs about relationships.

Although there is limited work on the topic of expectations and beliefs in sexual relationships from a relational standpoint,<sup>1</sup> some evidence suggests that individuals' expectations for sexual satisfaction are important for understanding their feelings about their sex life and relationship. For example, individuals experiencing sexual dysfunction (e.g., erectile dysfunction) often have negative

<sup>1</sup> However, there is a large body of work from a health perspective on how sexual beliefs and expectations shape risky sexual behaviors, such as research applying the Theory of Reasoned Action and the Theory of Planned Behavior (e.g., Albarracín, Johnson, Fishbein, & Muellerleile, 2001) and the Health Belief Model (e.g., Rosenstock, Strecher, & Becker, 1994).

expectancies for their sexual performance, creating a self-fulfilling prophecy, in which they ultimately have poorer quality sexual experiences (e.g., Barlow, 1986). Further, when women with a sexual dysfunction (such as decreased sexual arousal or decreased sexual desire) were led to believe they were experiencing sexual arousal in the lab, they had increased expectations that they would become aroused at a subsequent time point, and these heightened expectations successfully improved both their subjective and genital arousal to erotic stimuli (Palace, 1995). The role of expectations may similarly extend to nonclinical samples. In a longitudinal test of the role of sexual expectancies, McNulty and Fisher (2008) observed that newlywed women who anticipated being more satisfied with their sexual relationship had these expectations confirmed six months later; that is, they experienced positive changes in sexual satisfaction over time, whereas those who expected to be less satisfied experienced declines in satisfaction over time. These findings, however, are focused on an individual's expectations for how likely they are to be sexually satisfied, but do not address expectations for *how* this sexual satisfaction can be achieved.

## Present Research

### Measuring Sexuality-Specific Implicit Theories

The first goal of the current research was to develop a measure of people's implicit theories about sexual satisfaction. There are several theoretical and methodological advantages to developing a measure of implicit theories in the domain of sexuality as opposed to using the general relationship implicit theories measure. First, when individuals respond to general measures of destiny and growth beliefs, although they may be factoring in the sexual component of their relationship, they are likely considering their relationship as a whole and also considering many other domains of their relationship (such as communication, values, etc.; Mead, Vatcher, Wyne, & Roberts, 1990). In other research, researchers typically adapt measures of implicit theories to capture the specific domain of interest; for example, measuring entity and incremental theories of intelligence (i.e., whether one's intelligence is perceived to be malleable vs. relatively more fixed or stable) when examining reactions to intelligence threats (Dweck et al., 1995), and measuring entity and incremental theories of emotion regulation (Tamir et al., 2007) to predict individuals' emotional adjustment when transitioning to college. More specific measures have been shown to weakly correlate with more general implicit theories, and have greater predictive utility for related outcomes than the more general implicit beliefs (e.g., Rydell, Hugenberg, Ray, & Mackie, 2007; Tamir et al., 2007). For example, implicit theories of groups (whether a group's characteristics are seen as fixed/malleable) predict stereotyping behavior, whereas general implicit beliefs of individuals do not (Rydell et al., 2007).

Second, using the existing implicit theories of relationships scale (as opposed to creating our own sexual beliefs scale) may obscure important findings in the sexual realm, as other research suggests that adapting relationship measures specifically to the domain of sexuality enhances the ability of these measures to predict sexual and relational outcomes (e.g., Bois, Bergeron, Rosen, McDuff, & Grégoire, 2013; Muise & Impett, 2015). For example, researchers adapted a measure of communal strength (the motivation to meet a partner's needs) to specifically assess *sexual*

*communal strength* (the motivation to meet a partner's sexual needs), and this sexual-specific measure accounted for unique variance in predicting sexual desire (Muise, Impett, Kogan, & Desmarais, 2013) and relationship satisfaction and commitment (Muise & Impett, 2015) above and beyond a general relational measure of communal strength. In a similar fashion, other research has adapted the concepts of relational hyperactivation (attachment anxiety) and relational deactivation (attachment avoidance) to sexuality, to examine *sexual hyperactivation* (intense, but anxious expressions of sexual desire) and *sexual deactivation* (inhibitions of sexual inclinations) and found that sexual hyperactivation and deactivation capture unique aspects of sexuality unaccounted for by the general relational measures (Birnbbaum, Mikulincer, Szepeswol, Shaver, & Mizrahi, 2014). Additionally, research suggests that women's sexual intimacy in their relationship was only moderately correlated with their reports of relationship intimacy ( $r = .34$ ), and sexual—but not relationship—intimacy predicted the women's sexual satisfaction (Bois et al., 2013). Other researchers have adapted the construct of narcissism to the sexual domain to develop a measure of *sexual narcissism* (Widman, & McNulty, 2010), and have shown that sexual narcissism shapes the trajectory of marital and sexual satisfaction in newlywed couples—whereas general narcissism did not show these associations (McNulty & Widman, 2013). These studies suggest that people's attitudes in their sexual relationship have important implications not only for their sex lives, but for their overall relationships—associations that are not captured in assessments of their overall relationship attitudes. Analogously, other work has illustrated that couples' behaviors when discussing sexual disagreements are more diagnostic of overall relationship quality than behaviors in other types of relationship disagreements (Rehman et al., 2011). This body of research suggests the importance of developing a domain-specific implicit theories of sexuality measure that will likely confer greater predictive value than a more general measure of implicit theories of relationships. These findings highlight that sexuality is a unique relational domain that has the power to shape relational outcomes in important ways missed by more general relational processes.

Lastly, there is reason to believe that individuals' sexual attitudes may be distinct from, albeit related to, their overall relationship attitudes. In initial work on dysfunctional relationship beliefs by Eidelson and Epstein (1982), these researchers identified dysfunctional sexual beliefs (sexual perfectionism: e.g., "I get upset if I think I have not satisfied my partner completely;" "A good sexual partner can get himself/herself aroused for sex whenever necessary") as a subscale of the broader relational dysfunctional beliefs scale. The dysfunctional sexual beliefs subscale was only moderately correlated with the other relationship dysfunction beliefs subscales, ( $r_s = .27-.33$ ), including the belief that partners cannot change and the belief that disagreements are destructive. This suggests that beliefs about the sexual domain do not perfectly overlap with beliefs about relationships more broadly. Similarly, Jordan and McCormick (1988) developed a measure of irrational beliefs about sex (e.g., "My sex partner must be very skilled and competent in order for me to enjoy sex at all;" "If I fail as a lover, this means that I'm an inadequate person") which they demonstrated was associated with, but distinct from general irrational beliefs ( $r = .43$ ; e.g., "I often worry about how much people approve of and accept me;" Jones, 1969) and the aforementioned

dysfunctional relationship beliefs scale ( $r = .54$ ; Eidelson & Epstein, 1982). These findings on the divergence of sexual and broader relationship constructs support the argument of Birnbaum and colleagues (2014) that despite interconnectedness between behavioral systems, dysfunctions in one behavioral system (i.e., attachment/relationship system) do not necessarily always translate to other behavioral systems (i.e., sexual system), and hence each separate domain should be examined systematically. Specific to implicit theories, one can imagine how an individual may place high emphasis on sexual chemistry (sexual destiny beliefs) and assume, in part because of the strong emphasis in the media on sex being easy if you are paired with the “right” partner (Galician, 2004), pornography’s emphasis that sex should be easy and perfect (Metz & McCarthy, 2011), and the fact that sexual desire/satisfaction is high early on (Baumeister & Bratslavsky, 1999; Schmieberg, & Schröder, 2016), that sex should happen spontaneously and should not require planning. For example, in one study of women in long-term romantic relationships, only 5% of the sample reported scheduling sex as a strategy to influence their sexual desire, and only half of those women found the strategy successful (Herbenick, Mullinax, & Mark, 2014). This same individual who thinks sex should happen naturally and should not require planning, may recognize the importance of planning date nights for the purpose of spending time with a partner and improving the relationship (Girme, Overall, & Faingataa, 2014) or the importance of working to share household chores (Taylor, Funk, & Clark, 2007). That is, the individual may be aware of the effort needed to maintain a romantic relationship, but may not think the same effort should be required for his or her sex life, and may even resent having to “work” at something they think should be effortless. Furthermore, a Pew Research Centre poll of American adults conducted in 2007 suggested that 70% of respondents view a happy sexual relationship as very important for a successful marriage, whereas sharing religious beliefs (49%) and sharing tastes and interests (46%) were less likely to be deemed very important (Taylor et al., 2007). This may suggest that individuals prioritize compatibility in the sexual domain as facilitating relationship success differently from compatibility in other relational domains. In fact, sexual incompatibility is a key reason why many couples fight and seek therapy and ultimately break up or divorce (Risch, Riley, & Lawler, 2003; Yeh et al., 2006). Taken together, a body of work suggests that individuals’ sexual beliefs may be associated with, but are distinct from, their broader relationship beliefs, and thus should be assessed separately. In light of this work, we expect that sexual beliefs will meaningfully affect relationship quality above and beyond more general beliefs, and that examining sexual beliefs can uniquely contribute to our understanding of relationships.

### Sexual Growth Beliefs: Working on Your Sex Life

Based on our definition of the construct, individuals high in sexual growth beliefs believe that challenges in their sex life and sexual incompatibilities with their partner can be overcome with hard work. We theorize that these individuals view compromises and maintenance as integral routes to sexual satisfaction. Past research provides converging evidence that believing effort will enhance sexual satisfaction should lead to greater satisfaction, both in the bedroom and beyond (Burke & Young, 2012; Kleinplatz, 2010; Muise & Impett,

2015). This is based on the assumption that by conceiving sexual satisfaction as something you can work toward, those higher in sexual growth beliefs may evidence corresponding motivations and behaviors, such as be more committed to pleasing their partners and making compromises in the interest of mutual satisfaction. Indeed, individuals who report making changes in the sexual domain to benefit a romantic partner (such as changing the type or frequency of sexual activity in which they engage) have partners who are more satisfied, and feeling more positively about making sexual changes for one’s partner enhances relationship satisfaction for both romantic partners (Burke & Young, 2012).

Further, research in long-term couples suggests that it feels good to be a giving sexual partner (see review by Impett, Muise, & Rosen, 2015): being motivated to meet a partner’s sexual needs is associated with higher levels of daily sexual desire and higher relationship quality for both partners, and even buffered couples against declines in sexual desire over a 4-month period of time (Muise et al., 2013; Muise & Impett, 2015). People who are highly motivated to meet their partners needs even reaped these benefits in situations where their own personal desire for sex was low, suggesting that their focus on meeting their partner’s needs and willingness to compromise in the sexual domain can help bolster satisfaction (Day, Muise, Joel, & Impett, 2015). Additional evidence that effort in the bedroom will pay off comes from research on optimal sexuality (Kleinplatz & Ménard, 2007). In a sample of participants who self-identified as having “great sex,” it was found that an optimal sexual relationship “does not just happen,” but rather requires time, devotion, and prioritizing (Kleinplatz, 2010). Taken together, this evidence suggests that putting in time and effort to please a partner can have benefits for one’s sexual and overall romantic relationship. Although these studies have focused on the motivation to—and outcomes of—making changes in the sexual domain for a partner, we sought to examine the effects of holding the basic assumption that effort will enhance sexual satisfaction. Given this, our first hypothesis is that *sexual growth beliefs will be associated with greater sexual satisfaction and higher relationship quality*.

### Sexual Destiny Beliefs: Finding Your Sexual Soulmate

According to our conceptualization of sexual destiny beliefs, individuals high in sexual destiny beliefs think that the quality of their sex life will predict their relationship success, meaning they use their sexual relationship as a barometer for how their overall relationship is functioning. Analogous reasoning has been documented by entity theorists in the academic domain (e.g., a score on a test is a barometer of person’s general ability; e.g., Rattan, Good, & Dweck, 2012). We argue that individuals high in sexual destiny beliefs consider their sexual compatibility with a partner (i.e., when one perceives their partner to have similar sexual beliefs, preferences, needs or desires; Offman & Matheson, 2005) as the key to sexual satisfaction, and view having a passionate sex life as a sign that they have found an ideal compatible partner. Conversely, individuals high in sexual destiny beliefs attribute a lackluster sex life to an incompatible partner rather than due to a lack of work or effort. Although no work has examined the belief that compatibility is necessary for sexual satisfaction, some indirect evidence suggests that being with a compatible sexual partner—or at least *believing* one is with a compatible sexual partner—will enhance sexual and relationship satisfaction. When people have a romantic partner who has personality traits that are more similar to

their own—an aspect typically associated with a soulmate (Franiuk et al., 2002; Nemeček & Olson, 1999)—they experience greater sexual satisfaction (Farley & Davis, 1980). Furthermore, Cunningham, German, and Mattson (2015) found that individuals who are more confident in their choice of a romantic partner report higher relationship and sexual satisfaction relative to individuals who espouse more regret in their choice of partner. Specific to sexual compatibility, research suggests that perceiving a partner to be similar in sexual likes and desires, more so than actual compatibility, predicts higher sexual and relationship satisfaction (Mark, Milhausen, & Maitland, 2013). More specific evidence that sexual compatibility is associated with positive outcomes comes from a recent study that found that relationship commitment and sexual satisfaction positively predicted viewing one's romantic partner as an ideal sexual partner (de Jong & Reis, 2015). As the authors of this study note, the direction of this association is likely bidirectional, meaning that seeing a partner as closer to one's ideal sexual partner enhances commitment and satisfaction just as increased relationship quality is likely to promote idealized perceptions of one's partner.

The extant work, however, has focused on viewing one's romantic partner as sexually compatible; we extend this by focusing on individuals who believe sexual compatibility is the route to sexual satisfaction. Past work suggests that partner compatibility is at the crux of satisfaction for individuals high in destiny beliefs; for example, their reactions to relationship threats differ depending on whether they see their partner as a good fit or not (e.g., Franiuk et al., 2004). That is, they will focus on their partner's strengths if they are confident that their partner is a good fit, but focus on their partner's weaknesses if they are less confident in their partner's fit. In a similar fashion, individuals who consider finding a soulmate necessary for marriage are more willing to end their marriage when it no longer meets their needs (Amato, 2009), relative to individuals who do not think that spouses must be soulmates. This belief is problematic as experiencing incompatibilities or disagreements with a sexual partner is common in long-term relationships: Couples inevitably face situations in which their sexual interests differ from their partner (Impett & Peplau, 2003; see review by Muise, Kim, McNulty, & Impett, 2016). For example, they may differ in their desired sexual frequency or disagree on the specific sexual activities in which they wish to engage (Blumstein & Schwartz, 1983; O'Sullivan & Byers, 1996). As previously mentioned, issues surrounding sexuality are one of the most common reasons couples seek therapy, even as newlyweds (Doss, Simpson, & Christensen, 2004; Risch et al., 2003), and are among the most difficult issues to successfully resolve (Sanford, 2003). Thus, it is likely that individuals may encounter signs that their partner is not a good 'fit' or match for them, signs such as low sexual compatibility or greater sexual disagreements, which for individuals high in sexual destiny beliefs may lower their sexual and relationship well-being. As such, our second hypothesis is that: *The association between sexual destiny beliefs and sexual and relationship quality will be contingent on degree of perceived 'fit' with one's sexual partner. That is, when individuals high in sexual destiny beliefs are experiencing signs of sexual incompatibility with their partner, construed as higher levels of sexual disagreements or beliefs that their partner is not an ideal sexual partner, they will feel less satisfied, relative to when they are feeling more compatible.* In all of our studies, we analyze relationship and sexual satisfaction as two separate outcomes, as these constructs, although often related, are distinct (e.g., Hassebrauck, & Fehr, 2002), and it is possible that we may observe different effects across the

two outcomes. In particular, we anticipated that doubting partner compatibility (i.e., perceiving a lack of sexual match with a partner) might have a greater influence on the relationship (as opposed to sexual satisfaction for sexual destiny believers, given that they believe that sexual problems are diagnostic of broader relationship problems. In addition, it is possible we may find that overall, sexual destiny beliefs are associated with greater sexual and relationship satisfaction. The majority of individuals high in sexual destiny beliefs who are in ongoing long-term relationships may view their partner as a compatible, ideal sexual partner for them (or else they may have ended the relationship based on initial incompatibility; Knee, 1998). Accordingly, given that when destiny believers are convinced their partner is an ideal match, they experience relationship benefits, it is possible we may see overall positive effects of sexual destiny beliefs on satisfaction. We did not expect that the effects of sexual growth beliefs on both relationship and sexual satisfaction would be contingent on degree of fit with a sexual partner, as high sexual growth believers should think that they can work to resolve most reasonable differences with a partner.

We tested these predictions in six studies. In Study 1 we created a new measure, to assess sexual destiny and sexual growth beliefs. In Study 2 we validated our measure in a large online sample, and provided evidence for convergent and discriminant validity of our new measure. In Study 3 we examined variability in implicit sexual beliefs, above and beyond trait levels, as well as links with sexual and relationship quality in a naturalistic, 21-day experience sampling study. In Studies 4 and 5 we collected data from both members of romantic couples to examine how one person's implicit sexual beliefs may correlate with their partner's satisfaction. Study 5 was focused on a sample of first time parents, a demographic who may be undergoing substantial changes in their sex lives, including declines in sexual and relationship satisfaction (see reviews by Haugen et al., 2004; Serati et al., 2010). We next conducted a meta-analysis across these correlational studies to provide an overall picture of the consequences of these beliefs for sexual and relationship functioning, as well as to test the generalizability of our findings across variables such as gender and relationship length,<sup>2</sup> and to ensure that sexual destiny and sexual growth beliefs had predictive validity above more general implicit theory measures. Lastly, in Study 6 we experimentally manipulate sexual destiny and sexual growth beliefs to provide evidence of the causal role of these beliefs in shaping satisfaction, and to begin to explore how these beliefs may enhance satisfaction. In Study 6 we also explore whether individuals primed to be high in sexual destiny will show a relationship-enhancing behavior (willingness to make sexual changes in their relationship; Burke & Young, 2012), if they are confident they are sexually compatible with their partner.

## Study 1

The main goals of Study 1 were to develop a measure of sexual destiny and sexual growth beliefs and to provide an initial test of our hypotheses regarding the links between these two types of sexual beliefs and relationship and sexual satisfaction. We predicted that endorsing sexual growth beliefs would be associated

<sup>2</sup> General relationship destiny and growth beliefs tend to be uncorrelated with demographic variables such as gender, age, relationship length, number of previous relationships, or current relationship satisfaction (Knee & Petty, 2013). We similarly predicted that levels of sexual growth and sexual destiny beliefs would not differ across demographic factors.

with higher relationship and sexual satisfaction. We did not have strong predictions for an overall association between sexual destiny beliefs and relationship or sexual satisfaction.

## Method

**Participants and procedure.** We recruited 308 participants from the United States online through Amazon's Mechanical Turk. In accordance with standard compensation rates on Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011), we compensated participants \$0.60 for completing the survey (which took approximately 20 min to complete). We required participants to be currently involved in an exclusive romantic relationship of at least six months duration and to be sexually active<sup>3</sup> with their partner. We excluded 10 participants for not meeting study eligibility criteria, and 34 participants for failing a standard attention check embedded within the survey.<sup>4</sup> The final sample ( $N = 264$ ) for analysis included 131 men and 130 women (three participants chose not to disclose their gender) ranging in age from 18 to 69 years old ( $M = 31.83$ ,  $SD = 10.44$ ). Relationship length ranged from 6 months to 42 years 10 months ( $M = 5$  years 3 months,  $SD = 6$  years 4 months); 38% of participants were married, 22% cohabiting, 6% engaged, 28% seriously dating but not living together, 5% casually dating one person.

### Measures.

**Sexual destiny and sexual growth beliefs.** To assess sexual destiny and sexual growth beliefs, the first and second author directly adapted 14 items from Knee and colleagues' (2003) Implicit Theories of Relationships Scale that could reasonably be applied to reflect the domain of sexuality specifically (e.g., "It takes a lot of time and effort to cultivate a good *sexual* relationship"). We also created 21 additional face valid items (e.g., "If sexual satisfaction declines over the course of a relationship, it suggests that a couple is not a good match.") yielding a total of 35 items. Participants indicated their agreement with these items on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*).

**Relationship destiny and growth beliefs.** To establish the uniqueness of our sexual destiny and sexual growth beliefs measure from more general relationship beliefs, participants completed a measure of their general destiny and growth beliefs in relationships from the Implicit Theories of Relationships Scale (Knee et al., 2003). Participants rated 11 items reflecting destiny beliefs (e.g., "A successful relationship is mostly a matter of finding a compatible partner right from the start;"  $M = 2.94$ ,  $SD = 1.08$ ,  $\alpha = .90$ ) and 11 items reflecting growth beliefs (e.g., "It takes a lot of time and effort to cultivate a good relationship;"  $M = 5.36$ ,  $SD = .91$ ,  $\alpha = .87$ ) on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*).

**Incremental/entity beliefs.** As an additional control, we measured participants' implicit theories about how fixed or malleable they perceive individual attributes to be using a domain-general measure of incremental/entity implicit theories of personality (Levy, Stroessner, & Dweck, 1998). We used implicit theories of personality as a control (as opposed to other implicit theory scales such as implicit theories of intelligence), as we felt it would best generalize to a sexual context. Unlike measures of destiny and growth beliefs, incremental/entity beliefs are not statistically independent, meaning participants get one score on their tendency to perceive personality as malleable. Participants indicated their agreement with items assessing their incremental beliefs about personality dispositions (e.g., "People can always substantially change their basic characteristics;" four items), and their

entity beliefs (e.g., "Everyone is a certain kind of person and there is not much that can be done to really change that;" 4 items) on a 9-point scale (1 = *strongly disagree* to 9 = *strongly agree*). The ratings for the entity items were reverse-scored to create a continuous measure of incrementalism where higher values signify greater incremental beliefs, and lower scores signify entity beliefs ( $M = 4.87$ ,  $SD = 1.67$ ,  $\alpha = .94$ ).

**Sexual satisfaction.** Sexual satisfaction was assessed using the Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1995), which asks participants to rate their sexual relationship with their partners on five 7-point bipolar dimensions (e.g., good-bad, pleasant-unpleasant,  $M = 6.06$ ,  $SD = 1.10$ ,  $\alpha = .95$ ).

**Relationship satisfaction.** Relationship satisfaction was assessed using the Rusbult Martz, and Agnew (1998) 5-item satisfaction subscale of the Investment Model Scale. Participants indicated their agreement with items such as "I feel satisfied with our relationship" on a 9-point scale (1 = *do not agree* to 9 = *agree completely*;  $M = 7.45$ ,  $SD = 1.59$ ,  $\alpha = .95$ ).

## Results

**Refinement of initial scale.** To refine our measure of sexual destiny and sexual growth beliefs, we conducted an exploratory factor analysis (EFA) using maximum likelihood estimation and an oblique (promax) rotation (e.g., Costello & Osborne, 2005; Fabrigar, & Wegener, 2012). Our sample size of 264 and a Kaiser-Meyer-Olkin measure of sampling adequacy index of .91 suggest the sample size was appropriate to conduct an EFA (Comrey & Lee, 1992; Tabachnick & Fidell, 2007). As determined using the scree plot method (Cattell, 1966), the items loaded on two factors, which together accounted for 48.5% of the variance in the scale. As such, we conducted a subsequent set of analyses in which we extracted two factors and then retained items that had factor loadings greater than .5, and communalities (amount of variance explained by factor structure) greater than .3 (Comrey & Lee, 1992; Costello & Osborne, 2005; Tabachnick & Fidell, 2007). None of the retained items had cross-loadings above .3. See Table 1 for the final set of 24 items selected for the scale (bolded) and the factor loadings for each of the items. Eleven items were retained for the sexual destiny subscale (e.g., "Couples who experience sexual incompatibilities in their relationship will inevitably break up;"  $M = 2.97$ ,  $SD = 1.11$ ,  $\alpha = .93$ ) and 13 items were retained for the sexual growth subscale (e.g., "In a relationship, maintaining a satisfying sex life requires effort;"  $M = 5.74$ ,  $SD = .80$ ,  $\alpha = .91$ ). The sexual destiny and sexual growth subscales were

<sup>3</sup> To be inclusive of same-sex attracted participants, what constituted "sexually active" was left up to the participants and was not specifically defined by the researchers.

<sup>4</sup> In all reported studies with attention check questions, we asked participants to select a particular answer choice for that question (e.g., "I am not paying attention to this survey. If you are paying attention select strongly disagree;" and "I am paying attention to this survey. If you are paying attention, select number three."). We made the decision a priori to exclude participants who did not select the instructed value. Our exclusion rates are consistent with recent research demonstrating that up to 33.8% of MTurk participants (Goodman, Cryder, & Cheema, 2013), and 46% of broader populations (Oppenheimer, Meyvis, & Davidenko, 2009) fail to follow instructions and are inattentive, and hence should be excluded from analyses to reduce statistical noise and increase power.



Table 1  
Factor Loadings for Study 1

Item	Sexual destiny subscale	Sexual growth subscale
<b>A satisfying sexual relationship is partly a matter of learning to resolve sexual differences with a partner.</b>		<b>.726</b>
Sexual relationships often fail because people do not try hard enough.		.497
<b>Sexual desire is likely to ebb and flow (i.e., change) over the course of a relationship.</b>		<b>.553</b>
<b>Making compromises for a partner is part of a good sexual relationship.</b>		<b>.711</b>
<b>In a relationship, maintaining a satisfying sex life requires effort.</b>		<b>.698</b>
With enough effort, almost any sexual relationship can be satisfying.		.482
<b>A satisfying sexual relationship evolves through hard work and resolution of incompatibilities.</b>		<b>.696</b>
Challenges and obstacles in a couple's sex life can ultimately improve their sexual relationship.		.476
<b>Successful sexual relationships require regular maintenance.</b>		<b>.691</b>
<b>Sexual satisfaction often fluctuates over the course of a relationship.</b>		<b>.563</b>
Disagreements often enable a sexual relationship to improve.		.297
It takes a lot of time and effort to cultivate a good sexual relationship.		.516 <sup>a</sup>
<b>Acknowledging each other's differing sexual interests is important for a couple to enhance their sex life.</b>		<b>.787</b>
<b>In order to maintain a good sexual relationship, a couple needs to exert time and energy.</b>		<b>.735</b>
<b>Without acknowledging romantic partners' different sexual interests, a sexual relationship cannot improve.</b>		<b>.617</b>
<b>Working through sexual problems is a sign that a couple has a strong bond.</b>		<b>.748</b>
<b>Even satisfied couples will experience sexual challenges at times.</b>		<b>.704</b>
Declines in desire over the course of a relationship do not necessarily mean the relationship is in trouble.	-.379	.433
<b>Communicating about sexual issues can bring partners closer together.</b>		<b>.697</b>
If sexual desire declines over the course of a relationship, it suggests that a couple does not have a good relationship.		.625 <sup>b</sup>
If a couple has to work at their sex life, the relationship is probably not meant to be.		.734 <sup>b</sup>
If a relationship is meant to be, sex is easy and wonderful.		.739 <sup>b</sup>
<b>If sexual satisfaction declines over the course of a relationship, it suggests that a couple is not a good match.</b>		<b>.757</b>
Sexual partners are either compatible or they are not.		.537 <sup>a</sup>
<b>A couple is either destined to have a satisfying sex life or they are not.</b>		<b>.707</b>
A successful sexual relationship is mostly a matter of finding a compatible partner.		.485
<b>If sexual partners are meant to be together, sex will be easy and wonderful.</b>		<b>.757</b>
<b>It is clear right from the start how satisfying a couple's sex life will be over the course of their relationship.</b>		<b>.709</b>
<b>Experiencing sexual problems is a sure sign that a couple is not sexually compatible.</b>		<b>.773</b>
<b>A passionate sex life is a sign that two partners are meant to be.</b>		<b>.666</b>
<b>Struggles in a sexual relationship are a sure sign that the relationship will fail.</b>		<b>.655</b>
<b>Couples who experience sexual incompatibilities in their relationship will inevitably break up.</b>		<b>.784</b>
<b>Troubles in a sexual relationship signify a poor match between partners.</b>		<b>.789</b>
<b>An unsatisfying sex life suggests that the relationship was never meant to be.</b>		<b>.809</b>
<b>If a couple is truly in love, partners will naturally have high sexual chemistry.</b>		<b>.642</b>
Eigenvalue	11.08	5.90
% variance accounted for	31.66	16.85
Scale mean	2.97	5.74
Scale standard deviation	1.11	.80

Note. Factor loadings < .3 are not displayed. Reported values are from the pattern matrix. Items in bold represent items retained in the final scale.

<sup>a</sup> Item excluded based on low communality (<.3). <sup>b</sup> Items excluded because did not load on intended factor.

significantly negatively correlated,  $r = -.28, p < .001$ .<sup>5</sup> Men reported significantly higher sexual destiny beliefs ( $M = 3.16, SD = 1.03$ ) than did women ( $M = 2.80, SD = 1.16$ );  $t(259) = 2.58, p = .01$ . Conversely, women ( $M = 5.85, SD = .81$ ) were significantly higher in sexual growth beliefs than men ( $M = 5.61, SD = .78$ );  $t(259) = -2.39, p = .02$ ; see Table 2 for a summary of gender differences in endorsement across studies).

**Relation to other implicit theories.** We present the correlations among all variables measured in Table 3. As expected, sexual destiny beliefs were positively correlated with relationship destiny beliefs,  $r = .63, p < .001$ , and sexual growth beliefs were positively correlated with relationship growth beliefs,  $r = .72, p < .001$ . Further, sexual destiny beliefs were associated with lower incremental beliefs,  $r = -.17, p = .006$ , meaning they were associated with higher entity beliefs, whereas sexual growth beliefs were not significantly associated with incremental/entity beliefs,  $r = .06, p = .32$ .

**Sexual beliefs and satisfaction.** As an initial test of our hypotheses, we conducted a set of regression analyses in which we simultaneously entered both sexual growth and sexual destiny beliefs (given that they were negatively correlated) to examine the unique predictive effects of each on relationship and sexual satisfaction. Consistent with our hypotheses, sexual growth beliefs were positively associated with sexual satisfaction ( $b = .38, SE = .09, p < .001, 95\% CI [.21, .55]$ ) and relationship satisfaction ( $b = .67, SE = .12, p < .001, 95\% CI [.43, .91]$ ). Conversely, sexual destiny beliefs were not significantly associated with sexual satisfaction ( $b = .03, SE = .06,$

<sup>5</sup> This moderate negative correlation between sexual destiny and sexual growth subscales is in contrast to Knee (1998), who finds no correlation between general relationship destiny and growth beliefs. However, our findings are in line with Franiuk and colleagues (2002), who observed that soulmate and work-it-out theories are negatively correlated (e.g.,  $r = -.40$ ).

Table 2  
Associations Between Sexual Destiny and Sexual Growth Beliefs and Gender Across Studies

Study	Gender difference	Gender means
Study 1	Sexual destiny beliefs	$t(259) = 2.58^*$
		Males $M = 3.16, SD = 1.03$
	Females $M = 2.80, SD = 1.16$	
	Sexual growth beliefs	$t(259) = -2.39^*$
Males $M = 5.61, SD = .78$		
Females $M = 5.85, SD = .81$		
Study 2	Sexual destiny beliefs	$t(452) = 3.73^{***}$
		Males $M = 3.23, SD = 1.12$
	Females $M = 2.82, SD = 1.23$	
	Sexual growth beliefs	$t(452) = -2.35^*$
Males $M = 5.74, SD = .75$		
Females $M = 5.90, SD = .73$		
Study 3	Sexual destiny beliefs	$t(54) = 1.72^\dagger$
		Males $M = 4.24, SD = 1.24$
	Females $M = 3.68, SD = 1.17$	
	Sexual growth beliefs	$t(54) = -2.65^*$
Males $M = 4.74, SD = 1.10$		
Females $M = 5.40, SD = .75$		
Study 4	Sexual destiny beliefs	$t(195) = .73$
		Males $M = 3.22, SD = .95$
	Females $M = 3.11, SD = 1.02$	
	Sexual growth beliefs	$t(195) = -.80$
Males $M = 5.64, SD = .67$		
Females $M = 5.71, SD = .61$		
Study 5	Sexual destiny beliefs	$t(531) = -1.35$
		Males $M = 3.66, SD = 1.35$
	Females $M = 3.50, SD = 1.33$	
	Sexual growth beliefs	$t(531) = -.38$
Males $M = 5.54, SD = 1.17$		
Females $M = 5.50, SD = 1.17$		

$^\dagger p < .10$ .  $* p < .05$ .  $*** p < .001$ .

$p = .67, 95\% \text{ CI } [-.10, .15]$  or with relationship satisfaction ( $b = .05, SE = .09, p = .60, 95\% \text{ CI } [-.13, .22]$ ). Post hoc power analyses conducting using G\*Power software (Faul, Erdfelder, Buchner, & Lang, 2009) indicate that we had 99% power to detect these effects. Next, given the high correlations between sexual beliefs and both general relationship beliefs and implicit theories of personality attributes (incremental/entity beliefs), we conducted two additional set of analyses, one in which we controlled for general destiny and growth beliefs, and another in which we controlled for incremental/entity beliefs. The associations between sexual growth beliefs and both sexual and relationship satisfaction remained significant (see Tables 4

and 5), and adding the sexual growth and destiny belief subscales in the model accounted for unique variance in both outcomes ( $ps < .04$ ), above and beyond the influence of general growth and destiny beliefs or incremental/entity beliefs. Furthermore, we conducted several additional control analyses to rule out potential confounding variables, such as gender, relationship length, and sexual frequency. To provide an overall picture of the influence of these variables, we meta-analyze these additional analyses and discuss them in the Alternative Explanation & Generalizability section at the conclusion of the article.

**Discussion**

In Study 1 we developed a reliable measure of sexual growth and sexual destiny beliefs. As expected, sexual growth and sexual destiny beliefs were strongly associated with relationship growth and destiny beliefs, respectively. However, after accounting for people’s more general relationship beliefs, our measure of sexual growth beliefs was still associated with sexual and relationship outcomes, and our sexual belief subscales accounted for unique variance in the outcomes. Although no causal claims can be made, this study provides initial evidence that believing sexual satisfaction takes work (sexual growth beliefs) is associated with higher relationship and sexual satisfaction. In this study sexual destiny

Table 3  
Intercorrelations Among All Variables in Study 1

Variable	1	2	3	4	5
1. Sexual destiny beliefs	—	-.28***	.63***	-.37***	-.17**
2. Sexual growth beliefs		—	-.17**	.72***	.06
3. Destiny beliefs			—	-.27***	-.21**
4. Growth beliefs				—	.17**
5. Incremental/entity beliefs					—

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 4  
*Associations Between Sexual Growth Beliefs and Sexual Satisfaction Controlling for Other Implicit Theories in Study 1*

Model	<i>b</i>	<i>SE</i>	$\Delta R^2$	Tolerance
Model 1				
Step 1				
Relationship destiny beliefs	-.08	.06		
Relationship growth beliefs	.25***	.08		
Step 2				
Relationship destiny beliefs	-.17*	.08	.04**	.60
Relationship growth beliefs	.08	.11		.45
Sexual destiny beliefs	.14	.08		.56
Sexual growth beliefs	.32***	.12		.48
Model 2				
Step 1				
Incremental/entity beliefs	.01	.04		
Step 2				
Incremental/entity beliefs	.004	.04	.07***	.97
Sexual destiny beliefs	.03	.06		.90
Sexual growth beliefs	.39***	.09		.92

Note. Tolerance values below .1 are considered to indicate problematic multicollinearity (e.g., Cohen, Cohen, West, & Aiken, 2003; Tabachnick, & Fidell, 2007).

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

beliefs were not associated with sexual or relationship satisfaction; however, in subsequent studies we will directly test our prediction that the effect of sexual destiny beliefs on satisfaction depends on an individual's perceived sexual compatibility with their partner (which we did not measure in this initial study).

## Study 2

In Study 2 we had three main goals. We first sought to confirm the two-factor structure of the sexual destiny and sexual growth beliefs measure using confirmatory factor analysis (CFA). Second, we wanted to establish convergent and discriminant validity for the scale. Lastly, we wanted to replicate the observed associations between sexual growth beliefs and satisfaction, and test our pre-

diction that sexual destiny beliefs will relate to satisfaction most strongly in instances of incompatibility.

We conducted a CFA to ensure the factor structure of the sexual destiny and sexual growth beliefs measure established in Study 1 replicated in an independent sample, and assessed several variables to provide evidence for convergent and discriminant validity. We anticipated that sexual destiny and sexual growth beliefs would demonstrate a unique overall pattern of associations with other implicit theories and individual difference variables. We expected individuals' sexual beliefs to correlate with, but be distinct from, their implicit beliefs outside of the sexual domain—that is, their more general personality and relationship beliefs. Thus, as in Study 1, we examined correlations between the sexual destiny and sexual growth beliefs measures and measures of relationship destiny and growth beliefs (Knee et al., 2003), incremental/entity beliefs about personality (Levy et al., 1998), as well as an additional measure of relationship beliefs (i.e., soulmate and work-it-out theories; Franiuk et al., 2002). We expected higher sexual growth beliefs to predict endorsement of work-it-out theory (similar to growth beliefs), but to not predict endorsement of soulmate theory. On the other hand, we anticipated that higher sexual destiny beliefs would predict higher endorsement of soulmate theory (which encompasses many concepts similar to destiny beliefs) but would not predict endorsement of work-it-out beliefs.

To gain a better understanding of how our new measure of sexual beliefs correlate with personality more broadly, we examined associations with two of the Big Five factors (John, Donahue, & Kentle, 1991) we expected would relate to these beliefs: *conscientiousness* and *openness to experience* (however for interested readers all factors are reported in Table 7). Because sexual growth beliefs reflect a willingness to work hard at sexual relationships (e.g., "To maintain a good sexual relationship, a couple needs to exert time and energy") we expected individuals higher in sexual growth beliefs to be higher in conscientiousness, of which industriousness is a component (DeYoung, Quilty, & Peterson, 2007). We also expected these individuals would be higher in openness to

Table 5  
*Associations Between Sexual Growth Beliefs and Relationship Satisfaction Controlling for Other Implicit Theories in Study 1*

Model	<i>b</i>	<i>SE</i>	$\Delta R^2$
Model 1			
Step 1			
Relationship destiny beliefs	.01	.09	
Relationship growth beliefs	.58***	.11	
Step 2			
Relationship destiny beliefs	-.08	.11	.02*
Relationship growth beliefs	.38*	.15	
Sexual destiny beliefs	.15	.11	
Sexual growth beliefs	.38*	.17	
Model 2			
Step 1			
Incremental/entity beliefs	.05	.06	
Step 2			
Incremental/entity beliefs	.04	.06	.11***
Sexual destiny beliefs	.05	.09	
Sexual growth beliefs	.68***	.12	

\*  $p < .05$ . \*\*\*  $p < .001$ .

Table 6  
*Associations Between Sexual Destiny and Sexual Growth Beliefs and Other Implicit Theories in Study 2*

Theory	Belief	Zero order Correlation ( <i>r</i> )	$\beta$ (Simultaneous regression with sexual growth and sexual destiny as predictors)
Implicit theories of relationships (Knee et al., 2003)	Destiny beliefs		
	Sexual growth	-.34***	-.09*
	Sexual destiny	.73***	.70***
	Growth beliefs		
	Sexual growth	.74***	.72***
	Sexual destiny	-.31***	.05
Relationship theories (Franiuk, Cohen, & Pomerantz, 2002)	Soulmate theory		
	Sexual growth	-.09*	.08
	Sexual destiny	.45***	.48***
	Work-it-out theory		
	Sexual growth	.40***	.42***
	Sexual destiny	-.08	.07
Incremental/entity beliefs	Sexual growth	.11*	.06
	Sexual destiny	-.17**	-.15**

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

experience, given that sexual growth beliefs tap into a willingness to consider a partner’s different perspective (e.g., “Acknowledging each other’s differing sexual interests is important for a couple to enhance their sex life;” “Without acknowledging romantic partners’ different sexual interests, a sexual relationship cannot improve”). We did not have a reason to expect that sexual destiny beliefs would correlate with personality traits of conscientiousness or openness.

We further wanted to examine the associations between sexual growth and destiny beliefs with other commonly used individual difference and relationship measures.<sup>6</sup> We examined associations between our beliefs and *attachment style* (levels of attachment anxiety and avoidance), as attachment style can play an important role in shaping sexual motivations, behaviors, and attitudes in relationships (e.g., Birnbaum, Reis, Mikulincer, Gillath, & Orpaz, 2006; Davis, Shaver, & Vernon, 2004; Impett, Gordon, & Strachman, 2008). Although past research has found that general growth and destiny beliefs do not typically significantly correlate with attachment style—except for a small correlation between growth beliefs and attachment security (Knee & Petty, 2013)—we had reason to expect this may differ in the sexual domain. We anticipated that sexual growth believers would be lower in attachment avoidance, given that individuals higher in avoidant attachment show lower levels of communal orientation and a lack of responsiveness to their partner (Feeney & Collins, 2001), and report less concern for their partner’s state during sex (Birnbaum et al., 2006) and thus may also be less motivated to think they need to put in effort to please their romantic partner in the bedroom. It is also possible that sexual growth believers would be lower in attachment anxiety given the small correlation between general growth and attachment security (Knee & Petty, 2013). Conversely, we expected that sexual destiny believers would be higher in attachment anxiety, because individuals high in attachment anxiety show strong associations between their sexual and their relationship well-being (Birnbaum et al., 2006; Butzer & Campbell, 2008), and this interconnectedness between sexual and relationship functioning is also captured by sexual destiny beliefs (e.g., “Couples who

experience sexual incompatibilities in their relationship will inevitably break up”; “Struggles in a sexual relationship are a sure sign that the relationship will fail”). We did not expect sexual destiny believers to be higher on attachment avoidance.

Lastly, we wanted to examine the associations between sexual beliefs and *passionate and companionate love*, two types of love that have both been shown to be positively associated with sexual and relationship satisfaction (Sprecher & Regan, 1998). We included passionate and companionate love in particular to ensure that sexual destiny and sexual growth beliefs were not merely reflections of the two different forms of love, in particular, love predicated on high sexual desire versus long-term commitment. We predicted that individuals high in sexual growth beliefs, which reflect a more pragmatic view of sexuality (e.g., “Sexual desire is likely to ebb and flow (i.e., change) over the course of a relationship”), would be high on companionate love. Sexual destiny beliefs encompass items related to the importance of passion (e.g., “A passionate sex life is a sign that two partners are meant to be”), hence we expected sexual destiny believers to be higher in passionate love.

A third aim of this study was to replicate our findings from Study 1 and test our hypothesis that the association between sexual destiny beliefs and relationship quality is contingent on how sexually compatible the individual currently feels with their partner.

## Method

**Participants.** We conducted an a priori power analysis using  $G^*Power$  (Faul et al., 2009) which suggested that to detect effects of the same magnitude as in Study 1 with 80% power we would

<sup>6</sup> In the current work, we did not assess other measures of sexual beliefs and attitudes that might overlap with sexual growth and sexual destiny. However, in other work in our lab, we have examined sexual destiny and sexual growth beliefs in relation to other sexual attitudes and beliefs, and the associations range from approximately zero to  $r = .34$  (see Table S1 in the supplemental materials).

Table 7  
*Associations Between Sexual Destiny and Sexual Growth Beliefs Scale and Other Individual Difference Variables in Study 2*

Theory	Belief	Zero order Correlation ( <i>r</i> )	$\beta$ (Simultaneous regression with sexual growth and sexual destiny as predictors)
Attachment	Attachment anxiety		
	Sexual growth	-.04	.007
	Sexual destiny	.12*	.12*
	Attachment avoidance		
	Sexual growth	-.35***	-.29***
	Sexual destiny	.25**	.15**
BFI	Openness		
	Sexual growth	.16**	.18***
	Sexual destiny	-.02	.04
	Conscientiousness		
	Sexual growth	.16**	.14**
	Sexual destiny	-.10*	-.05
	Agreeableness		
	Sexual growth	.22***	.28***
	Sexual destiny	-.17**	-.09*
	Extraversion		
	Sexual growth	-.08	-.06
	Sexual destiny	.15**	.17**
	Neuroticism		
	Sexual growth	.14**	.27**
Sexual destiny	-.06	-.02	
Love	Passionate love		
	Sexual growth	.24**	.28**
	Sexual destiny	.02	.12*
	Companionate love		
	Sexual growth	.34**	.32**
	Sexual destiny	-.17**	-.05

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

need a sample of 146 participants; however, we recruited a much larger sample to align with recommendations for CFA of approximately 300 to 500 observations (e.g., Comrey & Lee, 1992). We recruited 535 participants from Amazon's Mechanical Turk who completed the 30-min study for \$0.70. The eligibility requirements were that the participant resided in the United States, and were either living with, or married to their current romantic partner. We excluded 13 participants prior to analysis for not meeting eligibility criteria and 65 participants for failing the attention check. The resulting sample for analysis ( $N = 456$ ) comprised 218 men, 236 women, 1 transgender, and 1 sex undisclosed, ranging in age from 18 to 73 years ( $M = 32.13$ ,  $SD = 9.86$ ). Participants were from a variety of ethnic backgrounds (80.7% Caucasian/European, 7% African American, 6% Latin American/Spanish, 5.1% Asian, 2% Aboriginal, and 2% undisclosed/other).<sup>7</sup> The majority of participants were heterosexual (89.5% heterosexual, 2.9% gay/lesbian, 5.7% bisexual, 1.1% other, .8% undisclosed), married (259 married, 33 engaged, 163 cohabiting, 1 undisclosed), and had been in a relationship for 7 years and 6 months on average ( $SD = 7.64$  years).

**Measures for testing our key predictions.** First participants completed the *sexual destiny and growth beliefs measure* created in Study 1, assessing their sexual destiny beliefs ( $M = 3.01$ ,  $SD = 1.19$ ,  $\alpha = .91$ ) and their sexual growth beliefs ( $M = 5.83$ ,  $SD = .75$ ,  $\alpha = .88$ ). Participants also completed the same measure of *sexual satisfaction* detailed in Study 1 ( $M = 5.73$ ,  $SD = 1.29$ ,  $\alpha = .93$ ). To assess *relationship quality* participants responded to the Per-

ceived Relationship Quality Components scale (Fletcher, Simpson, & Thomas, 2000) on a scale from 1 (*not at all*) to 7 (*extremely*). The satisfaction dimension (e.g., "How content are you with your relationship?,"  $M = 5.93$ ,  $SD = 1.18$ ,  $\alpha = .96$ ) and the commitment dimension (e.g., "How dedicated are you to your relationship?,"  $M = 6.47$ ,  $SD = 1.00$ ,  $\alpha = .96$ ) of the scale were relevant to our hypotheses and, and given their high correlation,  $r = .72$ ,  $p < .001$ , were averaged to create an index of relationship quality in analyses ( $M = 6.20$ ,  $SD = 1.01$ ,  $\alpha = .95$ ). These subscales were used to most closely approximate the Rusbult and colleague's satisfaction measure used in Study 1, and because commitment has been examined in past implicit theory of relationships work (e.g., Knee et al., 2004).

Next, to assess feelings of *sexual incompatibility* with their current partner, participants indicated the extent to which they experienced disagreements in their sexual relationship on a scale from 0 (*no disagreement*) to 4 (*a lot of disagreement*). Items were adapted from the Premarital Sexual Conflict Scale (Long, Cate, Fehsenfeld, & Williams, 1996) and included items such as "Disagreement over how often we have sex," and "Disagreement over who initiates sexual activity" ( $M = 2.17$ ,  $SD = .84$ ,  $\alpha = .84$ , 7 items).

<sup>7</sup> Note percentages total more than 100% as individuals could nominate more than one ethnicity.

**Convergent/discriminant validity measures.** To establish convergent and discriminant validity, participants responded to several measures. As in Study 1, participants completed a measure of their *destiny* ( $M = 3.08$ ,  $SD = 1.19$ ,  $\alpha = .91$ ) and *growth beliefs* ( $M = 5.54$ ,  $SD = .83$ ,  $\alpha = .85$ ) and *incremental/entity beliefs* ( $M = 5.09$ ,  $SD = 1.68$ ,  $\alpha = .92$ ). Participants next responded to the Relationship Theories Questionnaire (RTQ; Franiuk et al., 2002) indicating their endorsement of *soulmate theories* (e.g., “There is a person out there who is perfect (or close to perfect) for me,”  $M = 4.08$ ,  $SD = 0.86$ ,  $\alpha = .82$ , 11 items) and *work-it-out theories* (e.g., “If people would just put in the effort, most marriages would work,”  $M = 4.20$ ,  $SD = 0.74$ ,  $\alpha = .77$ , 9 items). To determine their attachment orientation participants completed the Experiences in Close Relationships Scale Short Form (Wei, Russell, Mallinckrodt, & Vogel, 2007). On a scale from 1 (*strongly disagree*) to 7 (*strongly agree*) participants indicated their agreement with 6 items assessing their *attachment anxiety* (e.g., “I need a lot of reassurance that I am loved by my partner”;  $M = 3.34$ ,  $SD = 1.33$ ,  $\alpha = .81$ ) and 6 items assessing their *attachment avoidance* (e.g., “I am nervous when partners get too close to me”;  $M = 2.18$ ,  $SD = 1.04$ ,  $\alpha = .80$ ). We assessed personality using 16 items selected from the Big Five Inventory (John, Donahue, & Kentle, 1991; for similar items see Kim, Schimmack, & Oishi, 2012) on a scale from 1 (*disagree strongly*) to 7 (*agree strongly*). Relevant to our predictions, we measured participants’ *openness to experience* (e.g., “I tend to value artistic and aesthetic experiences,”  $M = 5.24$ ,  $SD = 1.16$ ,  $\alpha = .67$ , 3 items) and *conscientiousness* (e.g., “I tend to do a thorough job,”  $M = 5.58$ ,  $SD = 0.96$ ,  $\alpha = .71$ , 4 items). Using the measures from Sprecher and Regan (1998) we assessed participants’ feelings of *passionate love* (e.g., “My partner always seems to be on my mind”;  $M = 6.94$ ,  $SD = 1.34$ ,  $\alpha = .87$ , 10 items) and *companionate love* in their relationship (e.g., “I feel that I can confide in my partner about virtually everything”;  $M = 7.62$ ,  $SD = 1.25$ ,  $\alpha = .85$ , 7 items) on a scale from 1 (*not at all true*) to 9 (*definitely true*).

## Results

**Confirmatory factor analysis.** We conducted a confirmatory factor analysis to verify the two-factor structure of the sexual destiny and sexual growth beliefs measure. Analyses were conducted using the statistical software R, in the lavaan package (Rosseel, 2012), using maximum likelihood estimation. Following the recommendations of Hu and Bentler (1999), we considered several model fit indices to assess the fit of the proposed model, including the root-mean-square error of approximation (RMSEA), the comparative fit index (CFI), and the standardized root-mean-square residual (SRMR). We gave preference to these indices over the  $\chi^2$  goodness-of-fit test, as  $\chi^2$  tests are heavily influenced by sample size and correlations among variables. RMSEA values below or close to 0.05 indicate a good fit, and values less than 0.08 indicate acceptable fit (e.g., MacCallum, Browne, & Sugawara, 1996). CFI values greater than .95 indicate good fit, although values higher than .90 are often considered acceptable (Bentler & Bonett, 1980). Values of the SRMR that are less than .08 indicate a good fit (Hu & Bentler, 1999).

First, we tested our hypothesized two-factor structure for the sexual destiny and sexual growth beliefs measure created in Study 1. We estimated a latent factor for sexual destiny beliefs, predicted

by 11 scale items, and a latent factor for sexual growth beliefs, predicted by 13 scale items. We used maximum likelihood estimation with robust standard errors (the ‘MLR’ function in lavaan which uses Huber-White standard errors; Huber, 1967; White, 1980) as some of the scale items were moderately negatively skewed (i.e., excess kurtosis values  $>4$ ; Curran, West, & Finch, 1996). We allowed the latent factors to correlate (given that the two subscales were negatively correlated in Study 1), and we correlated the error terms for eight pairs of scale items that we expected to correlate based on method effects (Cole, Ciesla, & Steiger, 2007; Hoyle, 2012); that is, similarly worded items, or items that are conceptually synonymous such as “Sexual desire is likely to ebb and flow (i.e., change) over the course of a relationship,” and “Sexual satisfaction often fluctuates over the course of a relationship.”<sup>8</sup> This model had acceptable fit, CFI = .90, BIC = 26350.004, RMSEA = .059, 90% CI [.054, .064], SRMR = .059.<sup>9</sup>

Next, because traditional entity/incremental theories represent a single dimension (Dweck et al., 1995), and sexual destiny beliefs were correlated with the sexual growth beliefs at  $r = -0.34$ , we tested an alternate model in which sexual destiny and sexual growth beliefs are captured by one overall latent construct. We loaded all of the sexual destiny and sexual growth indicators onto a single “sexual beliefs” latent construct, and consistent with our two-factor model, used maximum likelihood estimation with robust standard errors, and correlated the errors of the same pairs of items. Results revealed that a one-factor model did not show acceptable model fit, CFI = .71, BIC = 27266.199, RMSEA = .098, 90% CI [.094, 0.103], SRMR = .13. To ensure that the difference in fit between the two models was significant, following the guidelines put forth by Raftery (1995), we computed the difference in model BICs (because these two models were covariance matrix nested). The difference in BICs (which equaled 916) was greater than 10, providing strong evidence that the original two-factor model (with the smaller BIC) fit the data better than the alternate one-factor model.

**Convergent and discriminant validity.** Because sexual destiny and sexual growth beliefs were negatively correlated in Study 1, we report associations from regressions where both sexual destiny and sexual growth beliefs were simultaneously entered (see Table 6). As anticipated, sexual destiny and growth beliefs were highly correlated with other implicit measures. After accounting for sexual growth beliefs, individuals’ sexual destiny beliefs were significantly positively correlated with their general relationship destiny beliefs, soulmate theory beliefs and negatively associated with incrementalism beliefs (reflecting entity beliefs). As expected, sexual destiny beliefs did not significantly predict growth beliefs or work-it-out theories. Sexual growth beliefs were positively associated with general relationship growth beliefs, work-it-out beliefs, and did not significantly predict soulmate theory or incrementalism. These results suggest that individuals’

<sup>8</sup> In addition to the above-mentioned sample pair of items, we correlated the error terms for the following items: (a) scale items 3, 9, and 12, which all reference resolving difficulties; (b) scale items 7 and 16 for similar wording/concept (i.e., maintenance); (c) scale items 11, 18, and 22, which reflect natural chemistry/passion.

<sup>9</sup> The fit using traditional maximum likelihood (not estimating robust standard errors) was CFI = .89, RMSEA = .073, 90% CI [.067, .078], SRMR = .059.

beliefs about sexual relationships tend to correspond to their more global beliefs about relationships and personality dispositions. Correlations among sexual beliefs and all other individual difference measures are shown in Table 7. The correlations were small to moderate in size, and it was rare for both sexual destiny and sexual growth beliefs to be related to the same examined individual difference variable, providing evidence of discriminant validity.

As expected, higher sexual growth beliefs were related to other individual difference variables typically viewed as positive traits. In line with our predictions, individuals higher in sexual growth beliefs were lower in attachment avoidance (but not attachment anxiety), and were higher in conscientiousness and openness. As predicted, individuals higher in sexual growth beliefs were higher in companionate love; however, somewhat unexpectedly, they were also higher in passionate love. This association may be attributable to both sexual growth beliefs and passionate love being conceptually associated with greater relationship commitment (Sprecher & Regan, 1998). That is, passionate love involves devotion to a relationship (e.g., “I would feel deep despair if my romantic partner left me”), as do sexual growth beliefs (devotion to working on the sexual relationship).

Our hypothesis that individuals high in sexual destiny beliefs would also be higher in attachment anxiety was supported. We unexpectedly found that individuals higher in sexual destiny beliefs were also higher in attachment avoidance. However, this association may reflect the tendency, observed in clinical practice, of those higher in avoidant attachment to believe in the idea of a perfect mate (Levine & Heller, 2011). These results suggest that those who more strongly endorse sexual destiny beliefs are more likely to be insecurely attached in their relationships, relative to those with weaker sexual destiny beliefs. We also found support for our predictions that sexual destiny beliefs would not predict conscientiousness and openness, but would be positively correlated with passionate love.

**Sexual beliefs and satisfaction.** To test whether the main effects from Study 1 replicated, we performed a series of multiple regressions where we simultaneously entered sexual growth beliefs and sexual destiny beliefs. Confirming our predictions and replicating the findings in Study 1, sexual growth beliefs were positively associated with both sexual satisfaction ( $b = .33$ ,  $SE = .09$ ,  $p < .001$ , 95% CI [.17, .50]), and relationship quality ( $b = .38$ ,  $SE = .06$ ,  $p < .001$ , 95% CI [.25, .50]). We conducted additional analyses regarding possible mediators of the association between sexual growth beliefs and satisfaction in the supplementary materials (see supplemental materials p. 1, and Figures S1 and S2).

In these multiple regression analyses, sexual destiny beliefs were positively associated with sexual satisfaction ( $b = .12$ ,  $SE = .05$ ,  $p = .03$ , 95% CI [.01, .22]), but negatively associated with relationship quality ( $b = -.09$ ,  $SE = .04$ ,  $p = .03$ , 95% CI [-.17, -.008]). However, we anticipated that the associations between sexual destiny beliefs and satisfaction would differ depending on how close of a sexual match the individual felt with their partner, that is, the extent to which they were experiencing sexual differences with their partner. We did not expect sexual growth believers to respond to the degree of fit in the sexual domain, as they should think differences between partners can be overcome. To test our hypothesis that individuals higher in sexual destiny beliefs should report particularly low relationship quality when experiencing more conflicts in their sex life—we performed

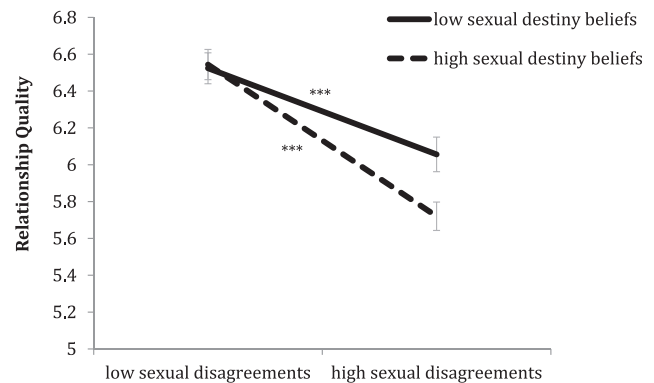


Figure 1. Sexual destiny beliefs and relationship quality as a function of sexual disagreements in Study 2. \*\*\*  $p < .001$ .

a multiple regression predicting relationship quality from sexual destiny beliefs, sexual growth beliefs, sexual disagreement level, and their interactions. As predicted, the negative main effect of sexual destiny was qualified by a significant interaction with sexual disagreements ( $b = -.09$ ,  $SE = .04$ ,  $p = .02$ , 95% CI [-.16, -.01]). As shown in Figure 1, those higher in sexual destiny beliefs experienced a more pronounced decline in relationship quality when experiencing more sexual disagreements ( $b = -.49$ ,  $SE = .06$ ,  $p < .001$ , 95% CI [-.61, -.37]) relative to the decline for those lower in sexual destiny beliefs ( $b = -.28$ ,  $SE = .08$ ,  $p < .001$ , 95% CI [-.42, -.13]). Put another way, at low levels of sexual disagreement, sexual destiny beliefs were not significantly associated with relationship quality ( $b = .01$ ,  $SE = .05$ ,  $p = .86$ , 95% CI [-.09, .10]); however, when disagreement levels were high, sexual destiny beliefs were negatively associated with relationship quality ( $b = -.14$ ,  $SE = .05$ ,  $p = .006$ , 95% CI [-.24, -.04]). Sexual destiny beliefs did not interact with sexual disagreements to predict sexual satisfaction ( $b = -.008$ ,  $SE = .05$ ,  $p = .86$ , 95% CI [-.11, .09]).

Sexual growth beliefs did not significantly interact with sexual disagreement levels to predict relationship quality ( $b = -.08$ ,  $SE = .06$ ,  $p = .22$ , 95% CI [-.21, .05]). However, unexpectedly, sexual growth beliefs did interact with sexual disagreement level to predict sexual satisfaction ( $b = -.20$ ,  $SE = .08$ ,  $p = .01$ , 95% CI [-.36, -.04]; see Figure 2), such that the positive association between sexual growth beliefs and sexual satisfaction was weakened (to marginally significant) at higher levels of sexual disagreement ( $b = .19$ ,  $SE = .10$ ,  $p = .07$ , 95% CI [-.01, .39]) relative to lower levels of disagreement ( $b = .53$ ,  $SE = .10$ ,  $p < .001$ , 95% CI [.33, .73]).

We meta-analyze the results of the main findings at the conclusion of the manuscript, and the results of the main findings controlling for general relationship growth and destiny theories. As in Study 1, we conducted several additional analyses to address potential moderating variables, which are discussed in the Alternative Explanation and Generalizability section at the conclusion of the manuscript.

## Discussion

In this study, we validated our measure of sexual destiny and sexual growth beliefs developed in Study 1 using confirmatory

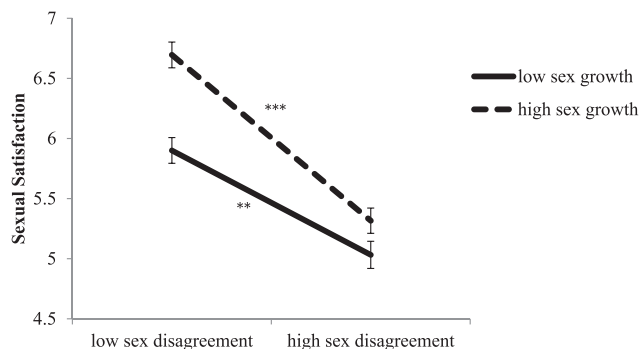


Figure 2. Sexual growth beliefs and sexual satisfaction as a function of sexual disagreements in Study 2. \*\*  $p < .10$ , \*\*\*  $p < .001$ .

factor analysis. We demonstrated that the hypothesized two-factor model with separate factors for sexual growth and sexual destiny fit the data better than a one-factor general ‘sexual belief’ model. We found that individuals’ sexual beliefs were related to, but independent from, broader individual differences in attachment style, types of love, and personality factors. Further, sexual destiny and sexual growth beliefs were associated in the predicted direction with nonsexuality specific implicit theory measures.

We replicated our finding from Study 1 that individuals higher in sexual growth beliefs—that is, those who believe sexual satisfaction takes work—were more sexually satisfied and had higher relationship quality. Experiencing sexual disagreements in one’s relationship did not alter the positive association between sexual growth beliefs and relationship quality. However, at high levels of sexual disagreement, the positive association between sexual growth beliefs and sexual satisfaction was weakened. Although the causal direction cannot be inferred, these findings may suggest that for individuals high in sexual growth beliefs, experiencing incompatibilities in the sexual domain does not detract from relationship quality. However, individuals higher in sexual growth beliefs may experience lower sexual satisfaction when encountering high levels of disagreement with their partner. These initial results provide some preliminary evidence for the possible boundary conditions of the adaptiveness or positive outcomes of sexual growth beliefs, suggesting that individuals high in sexual growth beliefs may feel sexually dissatisfied, at least temporarily, if sexual incompatibility is high.

We found evidence for our sexual destiny predictions as we observed that individuals who more strongly endorsed sexual destiny beliefs reported relationship quality that was more closely tied to their perceptions of incompatibility in their sexual relationship relative to those with weaker sexual destiny beliefs. When their sexual relationship was not going smoothly (i.e., they experienced higher levels of sexual disagreement) individuals who endorse sexual destiny beliefs reported lower relationship quality. If individuals higher in sexual destiny beliefs are using disagreement in their sexual relationship as a barometer for relationship satisfaction and commitment, this may be problematic given how prevalent sexual disagreements are in relationships. Even in the current sample people indicated, on average, that they experience a moderate level of sexual disagreement in their relationship (the sample average falling slightly above the midpoint of the 0–4 scale,  $M = 2.17$ ). The association between sexual destiny beliefs

and sexual satisfaction did not differ based on levels of sexual disagreement in the relationship, suggesting that individuals high in sexual destiny beliefs experience sexual incompatibilities as a signal of broader relationship issues, yet their global evaluation of their sexual satisfaction may remain intact.

Overall, this study provided additional evidence that people’s sexual beliefs relate to their own sexual and relationship well-being in important ways. In Study 3 we wanted to examine how people’s lay sexual beliefs may influence their daily sexual and relationship experiences. Replicating our effects from Studies 1 and 2 in everyday experiences would help increase the ecological validity of our findings.

### Study 3

Having demonstrated the effects of sexual growth beliefs and sexual destiny beliefs on sexual and relationship quality in two cross-sectional studies, we next sought to extend these findings by examining how between and within-person differences in sexual beliefs shape people’s day-to-day sexual experiences with a romantic partner. To do so, we assessed individuals’ sexual growth and destiny beliefs and sexual experiences daily over a period of 21 days. We expected to replicate our trait sexual growth findings from Studies 1 and 2 in a daily context, anticipating that individuals high in sexual growth beliefs would experience higher daily relationship quality, and report more satisfying sexual experiences. Conversely, given their sensitivity to signs of incompatibility, we anticipated that individuals higher in trait sexual destiny beliefs would experience poorer quality sex and lower daily relationship quality, but only on days when signs of incompatibility are present.

Although implicit theories are relatively stable individual traits, a body of work suggests they can be successfully changed via lab manipulations or interventions (see review by Dweck, 2011), and can shift based on one’s situational goals (e.g., endorsing incremental beliefs more after experiencing a failure vs. a success; Leith et al., 2014). Researchers have suggested that, although many individuals show a chronic preference for either the growth perspective or the fixed perspective, both theories are intuitive and generally available in long-term memory (Plaks et al., 2009). Thus, we expected that it was possible these beliefs may fluctuate somewhat from day to day within-person, and so we also tested whether daily fluctuations in these beliefs would be associated with subsequent fluctuations in daily relationship quality and sexual satisfaction. The benefit of testing daily fluctuations in beliefs is that we can control for between-person differences in sexual growth and destiny beliefs, allowing us to rule out concerns that the effects of sexual growth or destiny beliefs are due to underlying differences in the individuals who typically endorse these beliefs. Further, this design allows us to examine whether individuals, regardless of their mean levels of sexual growth beliefs, can benefit when they adopt more sexual growth beliefs on a daily basis. That is, in this study we were particularly interested in the *daily* effects of sexual destiny and sexual growth beliefs, meaning that we examined whether individuals are more satisfied on days when they endorse sexual growth or sexual destiny beliefs more than they typically do in their relationship.

This study also allowed us to begin to test the causal direction of our effects, given that we can look at how beliefs one day shape



outcomes on the next, and can also examine how beliefs at baseline predict relationship outcomes at the end of the 3-week period.

## Method

**Participants and procedure.** We recruited 80 participants for a larger study on daily experiences in romantic relationships using online postings on the website Craigslist in 16 major U.S. cities. By sampling 80 individuals over 21 days we would have sufficient data points to test our level-1 predictions about daily beliefs, and would have adequate power to detect moderate between-person effect sizes (Cohen, 1992; Hox, 2010).

Participants had to be at least 18 years of age, currently living with their romantic partner, and see their partner each day for the three weeks that they were in enrolled in the diary portion of the study. For the current study, because we were primarily interested in participants' sexual experiences in ongoing relationships, we included a subset of these participants who reported engaging in sex at least once over the course of the diary study. The final sample for the current study included 57 participants (24 male, 32 female, 1 other) who provided 988 total days of data (255 days on which sex occurred). Participants ranged in age from 24 to 56 ( $M = 33.54$ ,  $SD = 7.87$ ), most were unmarried (26.3% married), and the majority (79%) did not have children. Participants had been in their current relationships between three months and 28 years ( $M = 6.46$  years  $SD = 6.05$  years). Participants comprised a diverse range of ethnic backgrounds; 40% were European, 19% were Native American, 12% were Latino or Mexican, 5% were African American, 4% were Asian, and 19% were multiethnic or self-identified as "other."

On their first day in the study, we e-mailed participants a link directing them to a 45-min baseline survey. On each subsequent day, for the next 21 days this link connected them to a short daily survey, which took approximately 5 to 10 min to complete. We compensated participants with up to \$50 in Amazon.com gift cards for completing the baseline and daily surveys; payment was prorated based on the number of daily diaries completed. Participants completed an average of 17 (of 21) daily surveys ( $M = 17.42$ ,  $SD = 6.54$ ).

After the diary was completed, participants were invited via e-mail to participate in one final survey that contained many of the same questionnaires as the baseline survey. Forty-four participants (77% original sample) agreed to participate, and completed the survey on average 1 to 2 days after finishing the diary (range = day diary finished to 7 days after diary).

**Baseline measures.** Participants completed several individual difference measures in the baseline questionnaire as part of a separate study, however only sexual destiny beliefs, sexual growth beliefs, sexual satisfaction, and relationship quality were analyzed for the current research. Participants completed the measure of *sexual destiny beliefs* ( $M = 3.91$ ,  $SD = 1.21$ ,  $\alpha = .90$ ) and *sexual growth beliefs* ( $M = 5.13$ ,  $SD = 0.96$ ,  $\alpha = .90$ ) detailed in the previous studies. To assess changes in *relationship quality* from the beginning to end of the diary, we measured baseline relationship quality using the Rusbult et al. (1998) measures of satisfaction (e.g., "I feel satisfied with our relationship."  $M = 5.40$ ,  $SD = 1.26$ ,  $\alpha = .91$ ) and commitment (e.g., "I want our relationship to last a very long time."  $M = 5.57$ ,  $SD = 1.11$ ,  $\alpha = .80$ ) rated on a scale from 1 = *strongly disagree* to 7 = *strongly agree*. As in Study 2, we aggregated satisfaction and commitment,  $r = .47$ ,  $p < .001$  to form a general relationship quality composite ( $M = 5.49$ ,  $SD = 1.02$ ,

$\alpha = .86$ ). To assess changes in sexual satisfaction from the beginning to end of the diary, we measured baseline sexual satisfaction using the GMSEX (Lawrance & Byers, 1995) detailed in Study 2 ( $M = 6.11$ ,  $SD = .87$ ,  $\alpha = .87$ ).

**Daily-level measures.** Each day participants completed measures about their sexual beliefs, as well as their relationship and sexual experience quality, all of which participants rated on 7-point scales (1 = *strongly disagree* to 7 = *strongly agree*). We used measures with only a few items or a single item to increase efficiency (Bolger, Davis, & Rafaeli, 2003). To assess daily levels of sexual destiny and growth beliefs respectively, participants responded to the items "I believe a couple is either destined to have a satisfying sex life or they are not" ( $M = 3.60$ ,  $SD = 1.92$ ) and "I believe in a relationship, maintaining a satisfying sex life requires effort" ( $M = 5.19$ ,  $SD = 1.44$ ). Participants also responded to a one-item measure assessing their daily feelings of *sexual incompatibility* "My partner and I experienced some disagreement related to our sex life today" ( $M = 3.11$ ,  $SD = 1.89$ ), and two items assessing relationship quality (e.g., "I felt satisfied with my relationship with my partner today";  $M = 5.70$ ,  $SD = .95$ ,  $\alpha = .71$ ). Next, participants were asked whether they and their partner engaged in sex on that particular day by responding to the item "Did you and your romantic partner have sex today?" (response options were "yes" or "no";  $M = 4.47$  days,  $SD = 4.49$ ). If participants indicated that they did engage in sex with their partner on a particular day, they completed a three-item measure of *positive sexual experiences* which included items such as "During sex, I felt connected to my partner" ( $M = 5.76$ ,  $SD = 0.98$ ,  $\alpha = .80$ ; Birnbaum et al., 2006) and a four-item measure of *negative sexual experiences* with items such as "During or after sex, I felt some frustration and disappointment" ( $M = 2.82$ ,  $SD = 1.88$ ,  $\alpha = .94$ ; Birnbaum et al., 2006), which are treated as separate outcomes for analysis (Birnbaum et al., 2006; and were only moderately negatively correlated at  $r = -.24$ ).

**Follow-up measures.** After the 21-day diary was finished, we assessed *relationship quality* using the aforementioned Rusbult et al. (1998) measures of satisfaction ( $M = 5.76$ ,  $SD = 1.15$ ,  $\alpha = .89$ ) and commitment ( $M = 5.75$ ,  $SD = 0.85$ ,  $\alpha = .86$ ), which we aggregated,  $r = .49$ ,  $p = .002$  to form a general relationship quality composite ( $M = 5.76$ ,  $SD = 0.86$ ,  $\alpha = .88$ ). We also assessed *sexual satisfaction* using the same measures as baseline ( $M = 6.11$ ,  $SD = .84$ ,  $\alpha = .89$ ).

## Results

**Data analytic strategy.** In all analyses we entered sexual destiny and sexual growth beliefs simultaneously. We analyzed the data with multilevel modeling using mixed models in SPSS, to account for the fact that days were nested within person. Individuals' daily sexual destiny and sexual growth beliefs were *within-person* (person-mean) centered around each person's overall mean on these variables over the course of the diary. This means, for example, that on a day when an individual has a higher score on sexual growth beliefs, they endorse sexual growth beliefs more than they typically do. The intra class correlations for sexual destiny beliefs ( $\rho = .48$ ,  $t(253) = 8.70$ ,  $p < .001$ ) and sexual growth beliefs ( $\rho = .81$ ,  $t(253) = 21.97$ ,  $p < .001$ ) suggest that a significant amount of variability in beliefs is due to *between-person* differences, yet there were still meaningful variations

within-person (52% of variance for sexual destiny beliefs; 19% of variance for sexual growth beliefs). We will first report the effects of trait sexual growth and destiny beliefs measured at baseline on daily relationship satisfaction and positive/negative sexual experiences (to most closely replicate Studies 1 and 2), and then the within-person effects of daily beliefs. Because individuals' sexual destiny beliefs fluctuated at both a daily and more stable level, when testing our moderation hypothesis, we tested both the moderation between daily sexual destiny beliefs and daily disagreements, as well as the cross-level interaction between aggregate sexual destiny beliefs (the mean of the participant's daily sexual destiny beliefs over the course of diary) and daily disagreements.

**Sexual beliefs and satisfaction.**

**Main effects of sexual growth beliefs.** Consistent with our predictions, individuals higher in sexual growth beliefs at baseline reported more daily positive sexual experiences ( $b = .78, SE = .13, p < .001, 95\% CI [.52, 1.03]$ ), and marginally less daily negative sexual experiences ( $b = -.42, SE = .23, p = .07, 95\% CI [-.87, .03]$ ). Similarly, those higher in sexual growth beliefs at baseline reported higher daily levels of relationship quality ( $b = .66, SE = .12, p < .001, 95\% CI [.41, .90]$ ).

We next examined the *daily* effects of sexual growth beliefs on positive and negative sexual experiences, as well as on relationship quality. On days when individuals more strongly endorsed sexual growth beliefs relative to their own average, they reported marginally more positive sexual experiences ( $b = .15, SE = .08, p = .08, 95\% CI [-.02, .31]$ ) and higher daily relationship quality ( $b = .08, SE = .03, p = .01, 95\% CI [.02, .15]$ ). Daily sexual growth beliefs were not significantly associated with the extent to which sexual experiences were negative ( $b = -.09, SE = .12, p = .45, 95\% CI [-.33, .15]$ ).

**Main effects of sexual destiny beliefs.** Before examining our main prediction that individuals high in sexual destiny beliefs would have daily relationship and sexual quality contingent on the degree of sexual compatibility with their partner, we first tested main effects of sexual destiny beliefs. Individuals higher in sexual destiny beliefs at baseline reported daily sexual experiences that were significantly more negative ( $b = .70, SE = .17, p < .001, 95\% CI [.37, 1.03]$ ). Individuals' sexual destiny beliefs measured at baseline did not significantly predict the extent to which sexual experiences were reported as positive ( $b = -.08, SE = .09, p = .40, 95\% CI [-.26, .10]$ ), nor did they predict daily relationship quality ( $b = .01, SE = .09, p = .90, 95\% CI [-.18, .21]$ ). However when examining the effects of *daily* sexual destiny beliefs, we unexpectedly found that, on days when individuals more strongly endorsed sexual destiny beliefs relative to their own average, they reported higher relationship quality ( $b = .04, SE = .02, p = .02, 95\% CI [.009, .08]$ ). No other daily effects were statistically significant.

**Sexual beliefs and sexual disagreement.**

**Negative sexual experience.** We hypothesized that on days when individuals were higher in sexual destiny beliefs and experienced sexual disagreements with their partner, they would experience more negative sexual experiences. To test this hypothesis, we constructed a model which included both the mean levels (aggregated across the diary) and daily effects of sexual destiny and growth beliefs, as well as the mean and daily effects of overall sexual disagreement. Next, we included all four of the possible interactions between daily sexual disagreements and sexual destiny

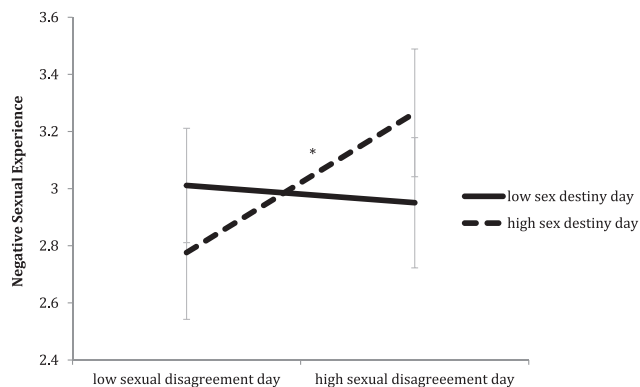


Figure 3. Daily sexual destiny beliefs and negative sexual experience as a function of sexual disagreements in Study 3. \*  $p < .05$ .

and growth beliefs: the two-way interactions between sexual disagreements and daily sexual destiny beliefs, mean daily sexual destiny beliefs, daily sexual growth beliefs, and mean daily sexual growth beliefs. As hypothesized, the interaction between daily sexual destiny beliefs and sexual disagreements was significant ( $b = .06, SE = .03, p = .04, 95\% CI [.004, .12]$ ; see Figure 3), whereas the other interactions did not reach statistical significance. Tests of the simple slopes confirmed our predictions that on days when individuals are higher in sexual destiny beliefs, they report significantly more negative sexual experiences when they reported higher sexual disagreement ( $b = .16, SE = .08, p = .03, 95\% CI [.01, .31]$ ), whereas on days when individuals were lower in sexual destiny beliefs, the level of sexual disagreement in their relationship was not associated with their negative sexual experiences ( $b = -.02, SE = .07, p = .77, 95\% CI [-.15, .11]$ ).

**Positive sexual experience.** Neither daily sexual destiny beliefs ( $b = -.003, SE = .02, p = .87, 95\% CI [-.05, .04]$ ), daily sexual growth beliefs ( $b = .08, SE = .07, p = .23, 95\% CI [-.05, .21]$ ), nor mean levels of sexual destiny beliefs ( $b = -.01, SE = .04, p = .76, 95\% CI [-.10, .07]$ ) interacted with daily sexual disagreement to predict positive sexual experience. However, consistent with Study 2, the positive effect of mean levels of sexual growth beliefs on positive sexual experiences was moderated by daily levels of sexual disagreement ( $b = -.08, SE = .04, p = .047, 95\% CI [-.17, -.001]$ ), such that the association between sexual growth beliefs and positive sexual experience was weaker when individuals' levels of sexual disagreements were higher ( $b = .38, SE = .11, p = .001, 95\% CI [.17, .60]$ ) rather than lower ( $b = .63, SE = .11, p < .001, 95\% CI [.42, .85]$ ) than typical.

**Relationship quality.** Neither daily sexual destiny beliefs ( $b = .01, SE = .01, p = .35, 95\% CI [-.01, .03]$ ), mean levels of sexual destiny beliefs ( $b = .001, SE = .02, p = .94, 95\% CI [-.03, .03]$ ), nor mean levels of sexual growth beliefs ( $b = -.03, SE = .02, p = .10, 95\% CI [-.06, .005]$ ) interacted with daily disagreement to predict daily relationship quality. However, daily levels of sexual disagreement moderated the association between daily levels of sexual growth beliefs and daily relationship quality ( $b = -.05, SE = .02, p = .02, 95\% CI [-.10, -.01]$ ), such that daily sexual growth beliefs had a positive association with relationship quality at lower ( $b = .17, SE = .05, p < .001, 95\% CI [.08, .27]$ ) but not

higher ( $b = .01, SE = .05, p = .83, 95\% CI [-.08, .10]$ ) levels of daily disagreement.

#### Causal direction.

**Lagged day effects.** Our theoretical model predicts that on days when people are higher in sexual growth beliefs, they have more positive sexual experiences and feel more satisfied with their relationships; however, it is also possible that on days when individuals have more positive sexual experiences and feel happier with their relationship, they more strongly endorse sexual growth beliefs. To compare these two alternatives we conducted lagged-day analyses, a statistical technique that examines the temporal sequences across days (West, Biesanz, & Pitts, 2000). Lagged day analyses cannot definitively demonstrate the causal sequence, but can help rule out certain causal pathways. It is also important to note that lagged day analyses lower statistical power as one day of the diary is not included in the analyses (i.e., the first day of the diary is excluded from analyses because there was no “yesterday,” or the final day of the diary is excluded from analyses because there is no “tomorrow”).

**Relationship quality.** To test our predicted causal model, today’s person-centered sexual destiny and sexual growth beliefs were entered as predictors of today’s relationship quality, controlling for yesterday’s person-centered relationship quality. This model tests whether sexual growth or destiny beliefs predict changes in relationship quality from the previous day. We found evidence that on days when people endorse sexual destiny beliefs ( $b = .04, SE = .02, p = .036, 95\% CI [.002, .08]$ ) or sexual growth beliefs ( $b = .10, SE = .04, p = .004, 95\% CI [.03, .17]$ ) more than they typically do they report increases in relationship quality from the previous day, which is consistent with our hypothesized causal direction. To test the reverse direction, we tested today’s relationship quality as a predictor of today’s sexual growth beliefs, controlling for yesterday’s sexual growth and sexual destiny beliefs and today’s sexual destiny beliefs. Here we found that greater relationship quality today predicted increases in sexual growth beliefs from the previous day ( $b = .11, SE = .04, p = .003, 95\% CI [.038, .18]$ ). When repeating this analysis for sexual destiny beliefs, we also found that greater relationship quality today predicted increases in sexual destiny from the previous day ( $b = .18, SE = .06, p = .006, 95\% CI [.05, .30]$ ). Thus, these results suggest that both causal directions are possible and there may be some bidirectionality in the association between sexual growth (and destiny) and relationship quality whereby endorsing higher sexual growth beliefs leads to higher relationship quality but the reverse direction is also possible: Feeling more satisfied may lead people to endorse sexual growth and sexual destiny beliefs more than they typically do.

**Positive sexual experience.** Because positive sexual experience was only measured on days when individuals engaged in sex, we cannot run typical lagged models to assess changes in positive sexual experience (which would require individuals to have sex two days in a row; which only occurred in 7% of cases). Instead, we ran models where we entered in as predictors today’s person-centered sexual destiny and sexual growth beliefs predicting today’s positive sexual experience, controlling for yesterday’s sexual growth and sexual destiny beliefs, which would suggest that increases in sexual growth beliefs predict more positive sexual experiences. This analysis indeed suggested that increases in sexual growth beliefs from yesterday to today predicted a more positive sexual experience today, although this effect did not reach statistical significance ( $b = .13, SE = .08, p = .11, 95\% CI [-.03, .28]$ ). Increases in sexual

destiny beliefs from the previous day did not predict positive sexual experience ( $b = .005, SE = .03, p = .88, 95\% CI [-.06, .07]$ ). To test the reverse direction we examined whether controlling for today’s sexual growth and sexual destiny beliefs, greater positive sexual experience today predicted sexual growth beliefs tomorrow (which would suggest having a good sexual experience led to increases in sexual growth beliefs). This analysis suggested that if anything, having a positive sexual experience today may be associated with a decrease in sexual growth beliefs tomorrow ( $b = -.14, SE = .08, p = .093, 95\% CI [-.29, .02]$ ), possibly suggesting that after a positive sexual experience individuals feel less of a need to “work” on their sex life. When repeating this analysis for sexual destiny beliefs, positive sexual experience did not predict increases in sexual destiny beliefs ( $b = -.11, SE = .14, p = .44, 95\% CI [-.39, .17]$ ). Although neither of the sexual growth lagged effects reached statistical significance, this pattern of results is more consistent with our hypothesized causal direction than the reverse; in other words, we found evidence more consistent that greater sexual growth beliefs lead to better sex, rather than better sex leading to increases in sexual growth beliefs.

**Negative sexual experience.** We repeated the analyses detailed above for positive sexual experience using negative sexual experience as the dependent measure. We found no significant effects for either causal direction. That is, controlling for sexual beliefs yesterday, sexual destiny ( $b = -.009, SE = .05, p = .87, 95\% CI [-.11, .09]$ ) and sexual growth beliefs ( $b = -.05, SE = .12, p = .68, 95\% CI [-.29, .19]$ ) today did not predict how negative the sexual experience was today. Likewise, controlling for today’s sexual beliefs, how negative the sexual experience was today relative to one’s own average did not predict sexual growth beliefs tomorrow ( $b = -.06, SE = .06, p = .35, 95\% CI [-.17, .06]$ ), but marginally positively predicted increases in sexual destiny beliefs ( $b = .17, SE = .10, p = .095, 95\% CI [-.03, .38]$ ) tomorrow.

**Changes over diary.** To provide additional support for our hypothesized causal model, we ran regression analyses predicting relationship quality and sexual satisfaction at the end of the diary from baseline sexual growth and sexual destiny beliefs, controlling for baseline relationship quality and baseline sexual satisfaction. This means we are assessing changes in relationship quality and sexual satisfaction over the 3-week diary period. We unfortunately did not assess sexual growth and sexual destiny beliefs at the end of the diary, so cannot test the reverse causal direction. Consistent with our theoretical prediction, higher sexual growth beliefs at baseline predicted positive changes in relationship quality at the end of the diary ( $b = .22, SE = .10, p = .035$ ), whereas higher sexual destiny beliefs at background were not significantly associated with changes in relationship quality ( $b = -.09, SE = .07, p = .19$ ). When repeating the models for sexual satisfaction, neither sexual growth ( $b = -.04, SE = .13, p = .78$ ) nor sexual destiny ( $b = .06, SE = .10, p = .53$ ) beliefs at baseline predicted changes in sexual satisfaction over the diary.

## Discussion

This study expands upon the results of the first two studies by providing compelling, ecologically valid evidence that individuals’ sexual beliefs are associated with the quality of their real-world sexual experiences. Those higher in sexual growth beliefs felt more connected and desired during their sexual experiences and evidenced higher relationship quality. Additionally, we observed that above and

beyond their average levels of sexual growth beliefs, individuals reported more positive sexual experiences and higher relationship quality on days when they more strongly endorsed the notion that sexual satisfaction requires work. Yet, the positive associations between mean levels of sexual growth beliefs and relationship and sexual satisfaction were weakened at higher levels of sexual disagreement, as in Study 2. This may suggest that individuals higher in sexual growth beliefs are not immune to the effects of incompatibility in their sex lives. We also saw that the association between daily sexual growth beliefs and relationship quality differed by levels of sexual disagreement, which did not occur for trait sexual growth beliefs in Study 2. It is possible that this difference in findings is due to differences in the level of measurement—despite experiencing sexual disagreement in their relationships, individuals higher in sexual growth beliefs may still experience higher global relationship satisfaction (as in Study 2), but individuals may not experience daily boosts in relationship quality on days when they are higher in sexual growth beliefs than typical.

Conversely, we once again saw evidence that higher sexual destiny beliefs are associated with sensitivity to signs of sexual relationship incompatibility. On days when individuals endorsed sexual destiny beliefs more than they typically did, sexual disagreements were associated with more frustrating, disappointing sex. This finding was above and beyond the person’s average levels of sexual destiny beliefs throughout the course of the diary, bolstering our confidence that it is the endorsement of sexual destiny beliefs, and not a third variable, driving these effects. It is important to note that we see an effect of sexual destiny beliefs on quality of sexual experience, whereas in Study 2, the association between sexual destiny beliefs and sexual satisfaction did not differ based on level of sexual disagreement. However, Study 2 was focused on global evaluations of one’s sex life, rather than a specific sexual encounter. Individuals higher in sexual destiny beliefs, especially given that they may tend to have more frequent sex (see Table 8), may be able to maintain global sexual satisfaction regardless of disagreements, but experience poorer quality sex in the moment. However, if these instances of disagreements and negative sexual experiences are repeated over time, there

may be limits to the imperviousness of sexual destiny believers’ sexual satisfaction.

Unexpectedly, experiencing a sexual disagreement on a particular day did not alter the association between sexual destiny beliefs (either daily or mean levels) and daily relationship quality. It is possible that the effects of sexual disagreements on relationship quality may take time to build up in individuals high in sexual destiny beliefs. That is, individuals high in sexual destiny beliefs may experience lower relationship quality only after repeated instances of sexual disagreements that lead them to question that they are with the ‘right’ partner.

The fact that at a daily level, greater endorsement of sexual destiny beliefs was associated with *higher* relationship quality may initially appear inconsistent with the findings of Studies 1 and 2, in which null and negative effects of sexual destiny beliefs on relationship quality were observed. However, given evidence that individuals may shift their implicit theories when they are motivated to reach desired goals (Leith et al., 2014), it is possible that individuals espouse sexual destiny beliefs more than they typically do on days when they are feeling particularly positively about and are confident in their relationship. That is, individuals may be more motivated to acknowledge the romanticized ideas of destiny particularly when things are going well in their relationship.

An additional advantage of the daily diary design was that it enabled us to begin to test our hypothesized causal direction of effects, although further work is needed to make firm conclusions. The results of our lagged day analyses (although they did not reach traditional levels of significance) were more consistent with our theoretical model that higher sexual growth beliefs lead to better sex, and not that better sex increases sexual growth beliefs. Although the effect did not reach statistical significance, we observed that having a negative sexual experience may increase sexual destiny beliefs, which is especially problematic, as increases in sexual destiny beliefs would amplify any existing concerns about compatibility. The lagged day analyses also suggest that the associations among sexual growth, sexual destiny beliefs and relationship quality may be bidirectional. That is, endorsing sexual destiny and sexual growth beliefs may facilitate higher relationship quality, but higher relationship quality may also reinforce the beliefs. For example, higher relationship quality may motivate an individual to continue to work on their sexual relationship (increase in sexual growth beliefs), and may also reinforce the notion that their partner is a good sexual match (increase in sexual destiny beliefs). Importantly, when analyzing changes in relationship quality over the 3-week diary period, our results strongly supported our hypothesized causal direction that sexual growth beliefs are associated with positive changes in relationship quality. We did not find evidence that either sexual growth or sexual destiny beliefs predicted changes in sexual satisfaction over the diary, which is in line with research suggesting sexual satisfaction is a relatively stable construct (Fallis, Rehman, Woody, & Purdon, 2016). Further, not finding changes in sexual satisfaction over the three weeks could also be a function of the participants’ already high mean levels of sexual satisfaction, or might suggest that the benefits of these beliefs are revealed over a longer period of time.

In sum, the results of Study 3 provide a fairly consistent pattern of results with Studies 1 and 2, and extend the results of the previous cross-sectional studies by examining the impact of sexual destiny and growth beliefs on daily sexual interactions in romantic relationships. As in Study 1 and 2 we once found that higher sexual growth beliefs

Table 8  
*Person Correlations Between Sexual Destiny and Sexual Growth Beliefs and Control Variables Across Studies*

Study	Relationship length	Sexual frequency
Study 1		
Sexual destiny beliefs	-.167*	.12
Sexual growth beliefs	.174**	.002
Study 2		
Sexual destiny beliefs	-.11*	.17***
Sexual growth beliefs	.05	-.03
Study 3		
Sexual destiny beliefs	.14	.35**
Sexual growth beliefs	.04	.28*
Study 4		
Sexual destiny beliefs	-.17*	.15*
Sexual growth beliefs	.18*	-.04
Study 5		
Sexual destiny beliefs	-.21**	.05
Sexual growth beliefs	.02	.06

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

were associated with higher relationship and sexual enjoyment, but that the positive association with sexual enjoyment was weaker at higher levels of sexual incompatibility. We also observed once again that individuals higher in sexual destiny beliefs report poor relational outcomes (in this case more negative sexual experiences) at high levels of incompatibility.

### Study 4

In Studies 1 through 3 we found evidence that sexual growth and sexual destiny beliefs predict sexual and relationship quality both at a trait and daily level. We next sought to test whether the influence of these beliefs might extend beyond the self, to one's romantic partner; although effects may be weaker relative to the effects on one's own satisfaction (e.g., Fallis et al., 2016), as these beliefs may act indirectly on one's partner. Given that past studies have found partner effects for sexual motivations/behaviors on satisfaction (e.g., Burke & Young, 2012; Day et al., 2015; Muise & Impett, 2015; Muise, Impett, & Desmarais, 2013), we anticipated that the effects of sexual beliefs could reasonably extend to one's partner. We expected sexual growth beliefs to benefit one's romantic partner, in light of evidence that working to please your partner in the bedroom (Burke & Young, 2012), and the motivation to sexually please your partner (Day et al., 2015; Muise & Impett, 2015; Muise et al., 2013) are associated with higher sexual satisfaction and relationship quality for that partner. We also anticipated that the lower relationship quality of high sexual destiny believers experiencing sexual incompatibility might extend to their partner's relationship quality as well. For example, it is possible that if someone high in sexual destiny beliefs begins to doubt whether their partner is an ideal sexual match for them, their partner may pick up that they are not meeting the sexual destiny believer's ideals, and consequently experience lower relationship quality. This interpretation would be consistent with work illustrating that individuals tend to be aware when they do not meet their romantic partner's ideals, which predicts lower relationship satisfaction for that individual (Campbell, Overall, Rubin, & Lackenbauer, 2013).

Additionally, a benefit of measuring both members of the couple is that we can use a composite measure of *couple* sexual disagreement (informed by both members of the couple), thereby reducing the possibility that the pattern of results observed in Studies 2 and 3 could be driven by sexual destiny believers having skewed perceptions of sexual disagreements in their relationships.

### Method

**Participants.** We conducted an a priori power analysis using the APIM Power analysis web application (Kenny & Ackerman, n.d.), which suggested that a sample of 56 couples should enable us to observe effects of the same magnitude as Studies 1 and 2 with 80% power (estimated effect size  $\beta = .25$ ); however, given that partner effects may be smaller in magnitude (e.g., Kenny & Malloy, 1988), we collected additional dyads.<sup>10</sup> One hundred fifteen couples (111 mixed-sex, 4 same-sex) completed the study as part of a larger study on relationship interactions. We recruited couples from an introductory psychology class at a large Canadian university, and from the Toronto area using online advertisements (Craiglist.com and Kijiji.ca) and posters around campus. Participants were compensated with either two course credits or \$20. To complete the study, we required couples to be in relationships longer than 6 months (range = 6 months

to 9 years;  $M = 1$  year, 11 months,  $SD = 1$  year, 7 months, *Median* = 1 year, 4 months) and be sexually active. We excluded five couples for not meeting these criteria, two couples because of experimenter error, and nine couples because one or both members failed to pass an attention check in the survey, leaving 99 couples. Participants ranged in age from 17 to 33 years old ( $M = 21.11$ ,  $SD = 3.09$ ), and were from a variety of ethnic backgrounds (50.5% Caucasian/European, 37.5% Asian, 4.2% Latin, 3.8% Black, 2.8% Arabic, 1.4% Aboriginal, 5% other). The majority (84.8%) of couples were exclusively dating (4% casually dating, 3.5% married, 3% common law, 2.5% engaged, 1% open relationship, 1% undisclosed) and were not cohabiting (72.7% not living together).

**Measures.** Participants responded to questionnaires individually in the lab. Because this was part of a larger study, we discuss only the measures used to test the current hypotheses. We used the same measures as Study 2 to assess participant's *sexual destiny beliefs* ( $M = 3.19$ ,  $SD = .98$ ,  $\alpha = .88$ ), *sexual growth beliefs* ( $M = 5.68$ ,  $SD = .64$ ,  $\alpha = .83$ ), *sexual satisfaction* ( $M = 6.34$ ,  $SD = .76$ ,  $\alpha = .90$ ), and *sexual disagreement levels* (rated on a scale from 1 to 5;  $M = 1.96$ ,  $SD = .68$ ,  $\alpha = .75$ ). We averaged both partner's ratings of sexual disagreement levels,  $r = .48$ ,  $p < .001$  to create a couple-level rating of disagreement ( $M = 1.96$ ,  $SD = .58$ ,  $\alpha = .81$ ).<sup>11</sup> *Relationship quality* was assessed using the Rusbult et al. (1998) measures of satisfaction ( $M = 7.78$ ,  $SD = .96$ ,  $\alpha = .84$ ) and commitment ( $M = 7.85$ ,  $SD = 1.23$ ,  $\alpha = .88$ ) detailed in Study 3, rated on a scale from 1 = *strongly disagree* to 9 = *strongly agree*. As in Studies 2 and 3, we aggregated satisfaction and commitment to form a general relationship quality composite ( $M = 7.82$ ,  $SD = .97$ ,  $\alpha = .89$ ) because of their high correlation,  $r = .55$ ,  $p < .001$ . Romantic partners' sexual destiny beliefs,  $r = .26$ ,  $p = .01$  and sexual growth beliefs,  $r = .19$ ,  $p = .054$  were significantly correlated.

### Results

**Analytic approach.** To account for the nonindependence in our data, we conducted multilevel modeling analyses using the mixed model function in SPSS. Guided by the Actor Partner Interdependence Model (APIM; Kenny, Kashy, & Cook, 2006), we included both partners' scores on both sexual growth beliefs

<sup>10</sup> We left the estimate of the correlation between actor and partner effects and the estimate of the correlation of the errors used in the power calculations as the default values ( $r = .3$ ), because we did not have specific expectations for these values.

<sup>11</sup> We used the average of both partner's disagreement levels in this case (rather than each partner's individual disagreement score) for several reasons. First, the sexual disagreement questions, which asked how often they and their partner had a disagreement over specific aspects of their sex lives, were meant to be a more objective assessment of the frequency of sexual disagreements in the relationship, not a subjective assessment of the intensity of the disagreements or one person's feelings about the disagreement (for which APIM would be preferable; Ledermann & Kenny, 2012). Given the reports referred to the relationship and not the individual/partner and the partners reported on the *same* variable, conceptually it makes sense to look at disagreement at the level of the dyad (e.g., Ledermann & Kenny, 2012) and doing so helps to reduce concerns about recall bias or self-presentation. Second, an exploratory factor analysis of actor and partner's sexual disagreement items indicated a one-factor structure; that is, actor and partner variables were not loading onto two separate dimensions, indicating a statistical justification to combine scores. Lastly, using the average of both members' sexual disagreement level (couple level moderator) improves statistical power relative to entering actor and partner effects separately, and can help reduce the complexity of results and improve the theoretical interpretation of results (Garcia, Kenny, & Ledermann, 2015).

and sexual destiny beliefs as predictors of sexual satisfaction and relationship quality. This allows us to test both actor and partner effects. Actor effects refer to whether one's own beliefs affect one's own satisfaction, whereas partner effects refer to whether a partner's beliefs affect one's own satisfaction (while accounting for one's own beliefs). Dyads were not significantly distinguishable by participant gender in the reported models ( $ps > .33$ ), and thus in accordance with Kenny, Kashy, and Cook's (2006) recommendations, we treated dyads as indistinguishable and retained the four same-sex couples in analyses. As in previous studies, we conducted several additional control analyses, which we meta-analyze and present in the Alternative Explanation & Generalizability section at the conclusion of the manuscript.

**Sexual beliefs and satisfaction.** In contrast to previous studies, although in the predicted direction, the effect of one's own sexual growth beliefs on sexual satisfaction did not reach statistical significance ( $b = .09, SE = .08, p = .25, 95\% CI [-.07, .26]$ ), and neither did the effect of a partner's sexual growth beliefs on sexual satisfaction ( $b = .12, SE = .08, p = .14, 95\% CI [-.04, .28]$ ). As the average length of relationship in this sample was considerably shorter than our previous studies (average of  $\sim 2$  years vs. 5–7 years in previous studies; Tukey's HSDs  $> 40$  months;  $ps < .001$ ), we examined whether the possibility that participants were involved in shorter relationships might contribute to our effects emerging only as nonsignificant trends (i.e., support that sexual growth beliefs become more important to sexual satisfaction as a relationship matures). We found that the effects of one's own sexual growth beliefs on sexual satisfaction marginally differed by relationship length ( $b = .008, SE = .004, p = .07, 95\% CI [-.0007, .02]$ ) in that sexual growth beliefs had a positive effect on sexual satisfaction for those in longer ( $b = .26, SE = .12, p = .04, 95\% CI [.01, .50]$ ) but not shorter relationships ( $b = -.07, SE = .12, p = .58, 95\% CI [-.31, .17]$ ). We further clarified the nature of the interaction between sexual growth beliefs and relationship length by using the Johnson-Neyman technique (Preacher, Curran, & Bauer, 2006), which suggested that the effect of sexual growth beliefs on sexual satisfaction became significant when individuals had been in their relationship for 36 months or longer (which corresponded to 20 couples in the current sample).

Given that our evidence for the positive effect of sexual growth beliefs on sexual satisfaction that had been so robust in Studies 1 through 3 only emerged as nonsignificant trends, we conducted a post hoc power analysis on the observed effects sizes (vs. a priori expected effect sizes) using the APIM power web application (Kenny & Ackerman, n.d.) to assess whether we were underpowered in these analyses. Although based on the findings of the previous studies, we should have been sufficiently powered, the effect size was lower in the current study. The post hoc power analysis on the actual effect size suggests we achieved only 20% power to detect the actor effect for sexual growth beliefs on sexual satisfaction, and 30% power to detect the partner effect, far below the recommended level of 80% power (Cohen, 1988).

As predicted, one's own sexual growth beliefs were associated with higher relationship quality ( $b = .22, SE = .11, p = .04, 95\% CI [.01, .43]$ ). Counter to expectations, although in the predicted direction, one partner's sexual growth beliefs did not significantly predict the other partner's relationship quality ( $b = .11, SE = .11, p = .30, 95\% CI [-.10, .32]$ ). Neither of these associations was moderated by relationship length ( $ps > .39$ ).

In turning to sexual destiny beliefs, first, we report the main effects: One's own sexual destiny beliefs were associated with higher sexual satisfaction ( $b = .14, SE = .05, p = .01, 95\% CI [.03, .24]$ ), consistent with Study 2, whereas one's sexual destiny beliefs did not significantly predict a partner's sexual satisfaction ( $b = .06, SE = .05, p = .24, 95\% CI [-.04, .17]$ ). Neither one's own ( $b = -.08, SE = .07, p = .26, 95\% CI [-.21, .06]$ ) nor one's partner's sexual destiny beliefs ( $b = -.05, SE = .07, p = .43, 95\% CI [-.19, .08]$ ) significantly predicted relationship quality. Next we tested our prediction that individuals high in sexual destiny beliefs would evidence lower relationship quality if experiencing sexual incompatibility. We regressed relationship quality on both partners' sexual destiny beliefs, both partners' sexual growth beliefs, the couple's sexual disagreement levels, and the interaction between each belief and disagreement level. As hypothesized, one's own sexual destiny beliefs significantly interacted with sexual disagreement to predict relationship quality ( $b = -.30, SE = .10, p = .005, 95\% CI [-.50, -.09]$ ). For individuals higher in sexual destiny beliefs, higher sexual disagreements were associated with poorer relationship quality ( $b = -.82, SE = .18, p < .001, 95\% CI [-1.18, -.46]$ ), whereas for those lower in sexual destiny beliefs, the level of sexual disagreements in their relationship did not significantly predict relationship quality ( $b = -.23, SE = .16, p = .17, 95\% CI [-.55, .10]$ ). Put another way, at high ( $b = -.31, SE = .10, p = .002, 95\% CI [-.50, -.11]$ ), but not low levels of sexual disagreement ( $b = .05, SE = .09, p = .56, 95\% CI [-.12, .22]$ ), being higher on sexual destiny beliefs was associated with poorer relationship quality. One's own sexual growth beliefs did not interact with sexual disagreement levels ( $b = -.22, SE = .17, p = .19, 95\% CI [-.55, .11]$ ) to predict relationship quality, and neither did a partner's sexual growth beliefs ( $b = -.08, SE = .17, p = .61, 95\% CI [-.41, .25]$ ) or sexual destiny beliefs ( $b = .04, SE = .10, p = .70, 95\% CI [-.17, .24]$ ).

Neither one's own sexual destiny beliefs ( $b = .12, SE = .08, p = .12, 95\% CI [-.03, .27]$ ) nor one's own ( $b = -.10, SE = .12, p = .41, 95\% CI [-.34, .14]$ ) nor one's partner's sexual growth beliefs ( $b = -.15, SE = .12, p = .21, 95\% CI [-.39, .09]$ ) significantly interacted with sexual disagreement to predict sexual satisfaction. Unexpectedly, we found that a partner's sexual destiny beliefs interacted with the couple's sexual disagreements when predicting sexual satisfaction ( $b = .20, SE = .08, p = .008, 95\% CI [.05, .35]$ ) such that the negative effects of sexual disagreements on sexual satisfaction were weaker when a partner was higher ( $b = -.31, SE = .13, p = .02, 95\% CI [-.58, -.05]$ ) rather than lower ( $b = -.74, SE = .12, p < .001, 95\% CI [-.97, -.51]$ ) in sexual destiny beliefs.

## Discussion

In this study we generally replicated our main findings from Studies 1–3, albeit with some exceptions. We once again saw that an individual's sexual growth beliefs were associated with higher relationship quality. The effect of one's sexual growth beliefs on sexual satisfaction, although in the predicted positive direction (as supported by the 95% confidence interval estimates), did not reach statistical significance. It is important to consider that this sample, which was largely undergraduate students, differs in several ways from the samples in Studies 1 through 3. For example, the large majority of couples were not cohabiting (73%), whereas cohabi-

tation was an eligibility requirement for participation in Studies 2 and 3. Additionally, the relationship length in this study—on average two years, and a median of under a year and a half—was significantly shorter than the average relationship lengths of the samples in Study 1 (5 years) and Study 2 (7 years) and Study 3 (6.5 years), and 37% of this sample indicated they had not been sexually active prior to their relationship with their current partner. It could be that during the early stages of relationships, when passion and desire are typically very high (Baumeister & Bratslavsky, 1999), there is less need to “work” to maintain sexual satisfaction and thus the benefits of sexual growth beliefs on sexual satisfaction have not yet been realized. This possibility is consistent with the fact that we observed that sexual growth beliefs were associated with higher sexual satisfaction for those in longer relationships (specifically longer than three years), and that sexual satisfaction levels tended to be quite high (on average 6.34 of 7), and levels of sexual disagreements tended to be low (on average 1.96 of 5). All of these factors likely weakened the effect of sexual growth beliefs on sexual satisfaction in this sample relative to the previous studies, which rendered us underpowered to detect these more subtle effects.

We replicated the finding that for those higher in sexual destiny beliefs, relationship quality is lower when greater sexual incompatibilities are reported. Importantly, we showed this effect using sexual disagreements measured at the couple level, reducing the influence of potential individual biases in perceived disagreement. As in Study 2, we observed that experiencing sexual differences from a partner was associated with lower relationship well-being—but not sexual well-being—for individuals higher in sexual destiny beliefs. In fact, we observed that having a partner who is higher in sexual destiny beliefs may weaken the negative association between sexual disagreements and one’s sexual satisfaction. If this finding replicates, future work should explore what may be driving this effect; for example, perhaps partners high in sexual destiny beliefs prioritize the importance of sex in their relationship, and thus are motivated to keep sex passionate and satisfying despite sexual disagreements. The effect of individuals’ sexual growth beliefs on relationship and sexual well-being did not waver regardless of levels of sexual disagreement in the relationship, which is consistent with our interpretation that individuals high in sexual growth beliefs are less likely to tie their relationship quality exclusively to the success of their sexual relationship, unlike individuals high in sexual destiny beliefs.

Counter to our predictions, one’s own sexual growth beliefs were not significantly associated with the romantic partner’s sexual or relationship well-being in this study. The observed small effect sizes suggest that sexual growth beliefs may play a very small role in a partner’s relationship and well-being, and hence we were very underpowered to detect these effects. The effects of sexual growth beliefs on a partner may have been especially subtle in this sample of undergraduates in relatively new relationships, given that partners tend to influence each other’s behaviors and outcomes more as a relationship progresses and partners become more interdependent (e.g., Berscheid, Snyder, & Omoto, 1989; Kelley & Thibaut, 1978). Thus, in Study 5, we sought to provide a stronger test of partner effects by examining dyads who were demographically more similar to those in Studies 1 through 3, and by collecting a larger sample size. In addition, we focused on a

sample of couples in which these beliefs may be particularly important: couples undergoing the transition to parenthood.

## Study 5

Past research suggests that the time period after the birth of a child is accompanied by changes in a couple’s sex life, such as declines in sexual desire, and lower sexual frequency (see review by Haugen et al., 2004). For example, in one sample of mothers 12 months after giving birth, nearly half of the women reported lower sexual desire than pre-pregnancy (Fischman, Rankin, Soeken, & Lenz, 1986). The transition to parenthood is also marked by dramatic increases in marital conflict (Belsky & Kelly, 1994), with 40% to 67% of couples experiencing sharp declines in marital quality (Shapiro, Gottman, & Carrère, 2000). Thus, unlike in Study 4, where most couples were in young, highly sexually satisfying relationships, couples who have recently become first time parents may be experiencing more difficulties in their sex lives than they typically do (e.g., Barrett et al., 1999). Thus, the transition to parenthood may be a time where the benefits of sexual growth beliefs become particularly pronounced; that is, couples may need to work to maintain sexual satisfaction in spite of issues such as pain during sexual intercourse and lower desire for sexual activity (Haugen et al., 2004).

In this study we used a different operationalization of partner fit. Rather than asking participants about the disagreements they are facing in their sex lives, we wanted to more directly assess how close of a match people felt that they were to their partner. Thus, we asked participants how close to an ideal sexual partner they view their current partner, an item we adapted from Franiuk and colleagues (2004).

## Method

**Participants.** Two hundred eighty-one couples completed the study as part of a larger study on postpartum sexual experiences. We conducted an a priori power analysis (Kenny & Ackerman, n.d.), which suggested that this sample size should allow us to detect with 80% power relatively small effects ( $\beta = .12$ ).<sup>12</sup> We recruited couples from several different online sources (Kijiji, Craigslist, Reddit, scienceofrelationships.com). We provided each member of the couple a unique link to complete the questionnaires individually online but which included a couple identifier that allowed their data to be linked. After both partners completed the survey, we compensated each member of the couple with a \$15 gift card to Amazon.com. To be eligible for the study, we required couples to be first-time parents of an infant currently aged three to 12 months. We excluded five couples for not meeting eligibility criteria, and two same-sex couples because a test of distinguishability (Kenny et al., 2006) revealed that the couples were distinguishable by participant gender ( $p < .001$ ), thus leaving 274 couples for analyses. Participants ranged in age from 20 to 45

<sup>12</sup> In this analysis, we used the values from Study 4 to inform the estimate of the correlation between actor and partner effects, and the estimate of the correlation of the errors used in the power calculation. We conservatively estimated an effect size of  $\beta = .12$ , which is much lower than the effect sizes observed in Studies 1-3, but slightly larger than the effects observed in Study 4, given that we expected this sample to show stronger effects than Study 4.

years old ( $M = 28.24$ ,  $SD = 3.67$ ), and most (93.7%) indicated a Canadian/American cultural identity (2.8% Asian, 1.7% European, 0.7% African, 0.4% Latin, 0.2% Middle Eastern, 0.6% other). Most couples (90.3%) were married (6.4% dating, 3.3% common law), and had been in their relationships an average of 3 years and 11 months (range = 9 months to 15.58 years;  $SD = 2$  years 4 months).

**Measures.** Because this was part of a larger study, we discuss only the measures used to test the current hypotheses. We used the same measures as in Study 1 through 4 to assess *sexual destiny beliefs* ( $M = 3.58$ ,  $SD = 1.34$ ,  $\alpha = .85$ ; 5 items), *sexual growth beliefs* ( $M = 5.52$ ,  $SD = 1.17$ ,  $\alpha = .87$ ; 5 items), and *sexual satisfaction* ( $M = 5.20$ ,  $SD = 1.27$ ,  $\alpha = .90$ ). However, to reduce participant fatigue, we abbreviated the sexual destiny and growth beliefs scales to include only the five most face valid or highest loading items from each subscale.<sup>13</sup> *Relationship quality* was measured using the Couple Satisfaction Index, which includes 32 items to assess relationship satisfaction up to a possible maximum score of 161 (Funk & Rogge, 2007;  $M = 111.14$ ,  $SD = 27.33$ ,  $\alpha = .97$ ). As an alternate conceptualization of sexual disagreement, in this study we used a measure of perceptions that one's partner is an *ideal sexual partner*: Participants indicated their agreement with the statement "My partner is as close to ideal as a sexual partner as I ever expect to find" on a scale from 1 = *strongly disagree* to 7 = *strongly agree* ( $M = 4.92$ ,  $SD = 1.40$ ).<sup>14</sup> We contrasted this item with a parallel measure of the extent to which the partner was seen as an *ideal relationship partner* ("My partner is as close to ideal as a relationship partner as I ever expect to find;" Franiuk et al., 2004;  $M = 5.21$ ,  $SD = 1.43$ ), which was significantly correlated with the ideal sexual partner item,  $r = .60$ ,  $p < .001$ . We included this ideal relationship partner measure to confirm that sexual destiny believers' relationship quality responds to perceived partner fit in the sexual domain specifically, rather than to broader relationship fit. Romantic partners' sexual destiny beliefs,  $r = .72$ ,  $p < .001$  and sexual growth beliefs,  $r = .76$ ,  $p < .001$  were significantly correlated.

## Results

**Analytic approach.** We analyzed the data in the same manner as in Study 4; that is, we conducted APIM analyses using the mixed function of SPSS. Dyads were distinguishable by participant gender ( $p < .001$ ); thus, in all analyses, we included interactions between each variable and participant gender. Differences between genders are only discussed when interactions with participant gender were statistically significant (that is, unless otherwise noted, estimates are pooled across genders). We simultaneously entered both partners' scores on sexual growth beliefs and sexual destiny beliefs to predict both sexual satisfaction and relationship quality, to test whether a partner's beliefs affect one's own satisfaction above and beyond one's own beliefs. As in previous studies, we conducted several additional control analyses, which we meta-analyze in the Alternative Explanation & Generalizability section at the conclusion of the manuscript.

**Sexual beliefs and satisfaction.** In line with our hypotheses, and replicating Studies 1 through 3, sexual growth beliefs were associated with higher sexual satisfaction ( $b = .51$ ,  $SE = .05$ ,  $p < .001$ , 95% CI [.41, .61]). This effect significantly differed by participant gender ( $b = -.16$ ,  $SE = .07$ ,  $p = .04$ , 95% CI

[ $-.30$ ,  $-.009$ ]), such that the positive effect of sexual growth beliefs on sexual satisfaction was stronger for women ( $b = .67$ ,  $SE = .10$ ,  $p < .001$ , 95% CI [.48, .86]) relative to men ( $b = .35$ ,  $SE = .08$ ,  $p < .001$ , 95% CI [.19, .52]), although sexual growth beliefs significantly predicted sexual satisfaction for both men and women. We also found that a partner's sexual growth beliefs were also associated with one's own sexual satisfaction ( $b = .21$ ,  $SE = .05$ ,  $p < .001$ , 95% CI [.11, .31]), an effect that was not moderated by participant gender ( $b = .12$ ,  $SE = .07$ ,  $p = .11$ , 95% CI [ $-.03$ , .26]). One's own sexual growth beliefs ( $b = 9.13$ ,  $SE = .82$ ,  $p < .001$ , 95% CI [7.51, 10.75]) and one's partner's sexual growth beliefs ( $b = 4.62$ ,  $SE = .83$ ,  $p < .001$ , 95% CI [2.99, 6.25]), were also significantly associated with higher relationship satisfaction, effects which did not differ based on participant gender ( $ps > .25$ ). Post hoc power analyses (Kenny & Ackerman, n.d.) suggest we achieved over 99% power to detect these effects.

Prior to testing our main prediction that sexual destiny beliefs are associated with lower sexual and relationship quality in instances of low partner fit, we first examined main effects of sexual destiny beliefs. Consistent with Studies 2 and 4, one's own sexual destiny beliefs were positively associated with sexual satisfaction ( $b = .11$ ,  $SE = .04$ ,  $p = .008$ , 95% CI [.03, .20]), and one's partner's sexual destiny beliefs were also positively associated with one's own sexual satisfaction ( $b = .12$ ,  $SE = .04$ ,  $p = .005$ , 95% CI [.04, .20]). The negative effect of one's own sexual destiny beliefs on relationship satisfaction ( $b = -3.90$ ,  $SE = .69$ ,  $p < .001$ , 95% CI [ $-5.25$ ,  $-2.55$ ]), which was also observed in Study 2, was moderated by participant gender ( $b = 3.48$ ,  $SE = 1.02$ ,  $p = .001$ , 95% CI [1.47, 5.50]), such that a woman's own sexual destiny beliefs were negatively associated with her relationship satisfaction ( $b = -7.38$ ,  $SE = 1.20$ ,  $p < .001$ , 95% CI [ $-9.74$ ,  $-5.02$ ]), but for men the effect of sexual destiny beliefs on relationship satisfaction was not significant ( $b = -.41$ ,  $SE = 1.26$ ,  $p = .74$ , 95% CI [ $-2.90$ , 2.07]). The negative partner effect of sexual destiny beliefs ( $b = -2.84$ ,  $SE = .69$ ,  $p < .001$ , 95% CI [ $-4.19$ ,  $-1.48$ ]) on relationship satisfaction was also moderated by participant gender ( $b = -4.00$ ,  $SE = 1.02$ ,  $p < .001$ , 95% CI [ $-6.01$ ,  $-1.98$ ]) such that having a partner high in sexual destiny beliefs was associated with lower relationship satisfaction among men ( $b = -6.83$ ,  $SE = 1.29$ ,  $p < .001$ , 95% CI [ $-9.37$ ,  $-4.30$ ]) but not among women ( $b = 1.16$ ,  $SE = 1.18$ ,  $p = .32$ , 95% CI [ $-1.15$ , 3.48]).

To test our key prediction that sexual destiny believers experience lower relationship quality in cases when they doubt their partner is an ideal sexual match, we added to the relationship quality model the interaction between actor sexual destiny beliefs and actor's perception that their partner is an ideal sexual partner (as well as a three-way interaction with gender) and did the same for actor sexual growth beliefs. As hypothesized, actor's sexual destiny beliefs interacted with his or her ideal sexual partner perceptions to predict relationship quality ( $b = .71$ ,  $SE = .37$ ,  $p = .057$ , 95% CI [ $-.02$ , 1.44]), although this interaction was only

<sup>13</sup> From the final scale (see the Appendix), items #1, 6, 13, 14, and 20 were administered to measure sexual destiny beliefs, and items #5, 7, 16, 19, and 23 were administered to measure sexual growth beliefs.

<sup>14</sup> We selected this item as other data in our lab suggests it correlated most strongly ( $r = .86$ ) with a full 7-item measure of sexual ideals (adapted from Franiuk et al., 2004).



marginally significant. For those high in sexual destiny beliefs, the extent to which they saw their partner as a sexual ideal had a stronger effect on their relationship quality ( $b = 5.12$ ,  $SE = .71$ ,  $p < .001$ , 95% CI [3.74, 6.50]) relative to those lower in sexual destiny beliefs ( $b = 3.22$ ,  $SE = .72$ ,  $p < .001$ , 95% CI [1.82, 4.63]). Put another way, when a partner was perceived as a less ideal sexual partner, the negative effects of sexual destiny beliefs on relationship quality were more pronounced ( $b = -4.27$ ,  $SE = .83$ ,  $p < .001$ , 95% CI [-5.91, -2.64]) relative to when a partner was perceived as more ideal ( $b = -2.30$ ,  $SE = .83$ ,  $p = .006$ , 95% CI [-3.93, -.68]). The extent to which people viewed their partner as an ideal *relationship* partner did not significantly interact with sexual destiny beliefs to predict relationship quality ( $b = -.02$ ,  $SE = .37$ ,  $p = .97$ , 95% CI [-.74, .72]).

One's sexual growth beliefs also interacted with his or her ideal sexual partner perceptions ( $b = 2.25$ ,  $SE = .42$ ,  $p < .001$ , 95% CI [1.42, 3.08]) to predict relationship quality, such that the positive association between sexual growth beliefs and relationship quality was weaker when perceptions of a partner as sexually ideal were low ( $b = 5.30$ ,  $SE = .90$ ,  $p < .001$ , 95% CI [3.53, 7.08]) relative to high ( $b = 11.56$ ,  $SE = 1.12$ ,  $p < .001$ , 95% CI [9.35, 13.77]). Neither sexual destiny beliefs ( $b = -.04$ ,  $SE = .02$ ,  $p = .15$ , 95% CI [-.08, .013]) nor sexual growth beliefs ( $b = .02$ ,  $SE = .03$ ,  $p = .60$ , 95% CI [-.04, .07]) interacted with perceptions that one's partner is an ideal sexual partner to predict sexual satisfaction, nor did the beliefs interact with the perception that one's partner is an ideal relationship partner ( $ps > .13$ ).

## Discussion

This study provides strong evidence for the benefits of sexual growth beliefs. We found evidence that both being high on sexual growth beliefs and having a partner who is high in sexual growth beliefs were associated with higher sexual and relationship satisfaction, even during a time period when having a satisfying sex life may be a struggle (Haugen et al., 2004; Serati et al., 2010). Although no causal inferences can be made, our data are consistent with our prediction that sexual growth believers may be able to maintain sexual and relationship satisfaction in their relationships during a tumultuous time in their sex lives because they are confident they can work through difficulties and do not see these difficulties as diagnostic of their overall relationship quality. However, we did see that the positive effects of sexual growth beliefs on sexual satisfaction were weaker if people saw their partner as less of an ideal sexual partner. This pattern, also observed in Studies 2 and 3, may once again suggest limits to the benefits of sexual growth beliefs and may suggest that sexual compatibility plays a role in sexual satisfaction, even for high growth believers.

By using a measure of how ideal of a sexual partner participants viewed their mate, we provided converging evidence with the findings of Studies 2 through 4 that sexual destiny believers have relationship quality that is reactive to signs that they are sexually incompatible with their partner. We did not find the same pattern of results for how ideally they viewed their mate as a relationship partner, nor when sexual satisfaction was the outcome. These findings are consistent with our argument that individuals high in sexual destiny beliefs use perceived *sexual* match with their partner as a barometer for *relationship* quality. That is, sexual incompatibility may not detract from sexual destiny believers' global

feelings of sexual satisfaction, but does detract from their feelings of relationship quality, given that sexual compatibility is viewed as essential to relationship success.

We found that the effects of sexual destiny beliefs differed by gender, such that for women higher sexual destiny beliefs were associated with lower relationship satisfaction for themselves and their male partners, but for men sexual destiny beliefs were not significantly associated with their own or their partner's satisfaction. We hesitate to make too much of these gender differences, as it is important to keep in mind the nature of the sample. All women gave birth, and may be experiencing the sexual difficulties associated with this time period, such as pain during intercourse, a lack of orgasm, and lower desire for sex (e.g., Barrett et al., 2000; see review by Serati et al., 2010) to a greater extent than men (Haugen et al., 2004). Sexual destiny believers endorse the statement that "If sexual partners are meant to be together, sex will be easy and wonderful," and in this postpartum time period, women may be experiencing a less than easy sex life in light of sleep-deprivation, mood swings, and changes to their body image and sexual self-perception (Pastore, Owens, & Raymond, 2011). Thus, it is possible that it may be particularly negative for a woman to be high in sexual destiny beliefs if she sees her current sexual situation as diagnostic of partner fit, which may detract from both partners' relationship satisfaction.

In this study we observed a higher correlation between partners' sexual destiny and sexual growth beliefs than in Study 4, which may reflect differences in the mean relationship length of couples in the studies, as couples tend to become more similar in values over time (Acitelli, Kenny, & Weiner, 2001).

## Meta-Analysis of Studies 1 Through 5

To provide a more robust estimate of the overall association between trait sexual growth/destiny beliefs and sexual and relationship quality we conducted a meta-analysis using the data from all five studies. Combining the data across studies ( $N = 1,523$ ) allows us to gain a more precise estimate of the overall association between the sexual beliefs and sexual and relationship quality, as well as estimate 95% confidence intervals for the effects.

We conducted the meta-analysis using the "metafor" package designed for R statistical software (Viechtbauer, 2010), using the partial correlation (Aloe, 2014; Peterson & Brown, 2005) between sexual growth beliefs and sexual satisfaction (controlling for sexual destiny beliefs), and repeated this procedure with relationship quality as the outcome. The estimate used for Study 3 for sexual satisfaction was the association between mean levels of daily sexual growth beliefs over the course of the diary with positive sexual experience, and for relationship quality the estimate was the association with mean levels of sexual growth beliefs with daily relationship quality. For Studies 4 and 5 where multilevel modeling was used, the  $t$  values were converted to  $r$ s (Lipsey & Wilson, 2001), and we also controlled for partner sexual destiny and sexual growth beliefs in these analyses. We used a random-effects approach (e.g., Schmidt, Oh, & Hayes, 2009), and derived estimates with 95% confidence intervals.

When we combined the effects from Studies 1 through 5, we observed a significant positive association between sexual growth beliefs and sexual satisfaction ( $r = .33$ ,  $SE = .11$ ,  $p = .002$ , 95% CI [.12, .55]) and between sexual growth beliefs and relationship

quality ( $r = .36$ ,  $SE = .07$ ,  $p < .001$ , 95% CI [.22, .50]). When combining across studies, a significant small positive association between sexual destiny beliefs and sexual satisfaction ( $r = .10$ ,  $SE = -.03$ ,  $p < .001$ , 95% CI [.05, .16]) emerged. As expected, there was no significant association between sexual destiny beliefs and relationship quality, although this association was trending in a negative direction ( $r = -.08$ ,  $SE = .06$ ,  $p = .09$ , 95% CI [-.20, .03]).

We next tested the interaction between sexual destiny beliefs and sexual incompatibility (disagreements from Studies 2–4, and perceptions that partner was sexual ideal, reverse scored, from Study 5) when predicting relationship quality. The interaction between sexual destiny beliefs and sexual compatibility predicting relationship quality was significant when combining across Studies 2 through 5<sup>15</sup> ( $r = -.09$ ,  $SE = .03$ ,  $p = .002$ , 95% CI [-.15, .03]). We further meta-analyzed the simple effects of sexual destiny beliefs from each study at high (+1SD) and low (-1SD) levels of sexual incompatibility. When sexual incompatibility was high ( $r = -.15$ ,  $SE = .06$ ,  $p = .02$ , 95% CI [-.27, -.027]) sexual destiny beliefs was negatively associated with relationship quality, whereas when sexual incompatibility was low sexual destiny beliefs did not significantly associate with relationship quality ( $r = -.01$ ,  $SE = .05$ ,  $p = .82$ , 95% CI [-.12, .09]). When predicting sexual satisfaction, sexual destiny beliefs and sexual compatibility did not interact significantly ( $r = .04$ ,  $SE = .03$ ,  $p = .17$ , 95% CI [-.02, 0.10]).

We similarly tested whether sexual growth beliefs interacted with sexual compatibility. The interaction between sexual growth beliefs and sexual compatibility was significant when predicting both relationship quality ( $r = -.14$ ,  $SE = .05$ ,  $p = .004$ , 95% CI [-.23, -.05]), and sexual satisfaction ( $r = -.07$ ,  $SE = .03$ ,  $p = .03$ , 95% CI [-.13, -.008]). The simple slopes analyses indicate that sexual growth beliefs were positively associated with relationship quality at both low ( $r = .35$ ,  $SE = .08$ ,  $p < .001$ , 95% CI [.20, .51]) and high ( $r = .22$ ,  $SE = .08$ ,  $p = .005$ , 95% CI [.07, .37]) levels of sexual incompatibility. Likewise, sexual growth beliefs were positively associated with sexual satisfaction at both low ( $r = .29$ ,  $SE = .08$ ,  $p < .001$ , 95% CI [.13, .46]) and high levels of sexual incompatibility ( $r = .20$ ,  $SE = .09$ ,  $p = .03$ , 95% CI [.02, .38]).

## Discussion

Overall, these results suggest that sexual growth beliefs are moderately positively associated with both sexual and relationship quality. We also found evidence that there is a small main effect of sexual destiny beliefs on sexual satisfaction. There was no overall effect of sexual destiny beliefs on relationship quality. However, sexual destiny beliefs significantly interacted with incompatibility levels to predict relationship quality, but not sexual satisfaction. This supports our idea that individuals who espouse sexual destiny beliefs are especially likely to use sexual compatibility as a barometer for relationship quality. With regard to sexual growth beliefs, we found that once we combined across studies, sexual growth beliefs did significantly interact with compatibility levels to predict relationship quality and sexual satisfaction. This suggests that sexual growth believers do notice incompatibilities in the bedroom, and there may be limits to the extent to which sexual growth believers feel they can ‘work’ through incompatibilities.

However, it is important to remember that the meta-analysis of simple slopes suggest that sexual growth beliefs still had a positive association with relationship and sexual satisfaction at high levels of incompatibility, the effects were just weaker relative to lower levels of incompatibility.

## Alternative Explanations and Generalizability

We conducted additional analyses to rule out several alternative explanations for our findings. We use the same meta-analytic procedures detailed in the analyses above, to provide robust estimates of the influence of these factors across studies. First, given the high correlations between sexual destiny and sexual growth beliefs and general destiny and growth beliefs, we wanted to ensure that sexual growth and sexual destiny were unique from the general destiny/growth relationship beliefs. Thus, we repeated the meta-analyses detailed above for Studies 1, 2, and 4 (as general destiny/growth relationship beliefs were not included in Studies 3 or 5), estimating the effects with general destiny and growth beliefs partialled out. Although the effects were reduced in magnitude, we once again observed a significant positive association between sexual growth beliefs and sexual satisfaction ( $r = .09$ ,  $SE = .04$ ,  $p = .02$ , 95% CI [.02, .17]) and between sexual growth beliefs and relationship quality ( $r = .12$ ,  $SE = .03$ ,  $p < .001$ , 95% CI [.05, .19]). Similarly, the positive association between sexual destiny beliefs and sexual satisfaction ( $r = .09$ ,  $SE = .03$ ,  $p = .01$ , 95% CI [.02, .15]) remained significant, and the association between sexual destiny beliefs and relationship quality remained nonsignificant ( $r = -.04$ ,  $SE = .06$ ,  $p = .54$ , 95% CI [-.16, .08]).

To test the generalizability of our findings, we conducted additional analyses where we separately tested whether gender, relationship length, sexual frequency, or marital status moderated any of our findings. We examined these variables in particular as they are associated with the outcomes we examined—relationship and sexual satisfaction (e.g., Laumann, Gagnon, Michael, & Michaels, 1994; McNulty & Fisher, 2008; VanLaningham, Johnson, & Amato, 2001; Waite, 1995)—and thus we wanted to make sure our findings held across levels of these variables. In these analyses we created interaction terms between sexual destiny beliefs and each moderating variable, as well as sexual growth beliefs and each moderating variable. We then meta-analyzed the interaction term from each study.

Gender in all studies was coded such that -1 = females and 1 = males. The interactions between sexual growth beliefs and gender when predicting both sexual satisfaction ( $r = -.02$ ,  $SE = .06$ ,  $p = .69$ , 95% CI [-.13, .09]) and relationship quality ( $r = .01$ ,  $SE = .03$ ,  $p = .65$ , 95% CI [-.05, .08]) were not significant. Likewise, the interaction between sexual destiny beliefs and gender when predicting sexual satisfaction was not significant ( $r = .04$ ,  $SE = .03$ ,  $p = .16$ , 95% CI [-.02, .10]). The interaction between sexual destiny beliefs and gender when predicting relationship satisfaction approached significance ( $r = .08$ ,  $SE = .04$ ,  $p = .06$ , 95% CI [-.004, .17]), which is consistent with the findings of Study 5, suggesting that endorsing sexual destiny beliefs may be less negative for men relative to women. Overall, the lack of gender moderations suggests that, despite gender dif-

<sup>15</sup> For Study 3, we used the estimate of aggregate sexual destiny beliefs and daily disagreement on daily relationship quality.

ferences in mean levels of sexual growth and sexual destiny beliefs, the beliefs operate similarly to affect satisfaction for both men and women.

The interactions between sexual growth beliefs and relationship length did not reach significance when predicting sexual satisfaction ( $r = .08$ ,  $SE = .06$ ,  $p = .18$ , 95% CI  $[-.04, .20]$ ) or relationship quality ( $r = .02$ ,  $SE = .03$ ,  $p = .47$ , 95% CI  $[-.04, .08]$ ). Likewise, the sexual destiny beliefs by relationship length moderation did not reach significance when predicting sexual satisfaction ( $r = -.04$ ,  $SE = .04$ ,  $p = .29$ , 95% CI  $[-.12, .04]$ ) or relationship quality ( $r = -.05$ ,  $SE = .04$ ,  $p = .21$ , 95% CI  $[-.12, .03]$ ). These results suggest that the beliefs tend to function similarly for individuals in longer versus shorter relationships. However, it is important to remember that in Study 4, where we examined relationships of a much shorter duration than those in the other four studies, we did find some evidence that the effects of sexual growth beliefs on sexual satisfaction were weaker for those in shorter relationships, and that they began to have a significant effect in relationships longer than 3 years (a threshold that the majority of people had surpassed in the other studies). Thus, it is possible that sexual growth beliefs start to matter more for sexual satisfaction as a relationship progresses, but perhaps there is a threshold at which relationship length no longer plays an important role.

In Studies 1, 2, and 3 we additionally tested whether the effects of sexual destiny and sexual growth beliefs significantly differed between married (coded 1) and dating participants (coded -1). Analyses were not conducted for Study 4, as only 4.2% of participants were married, or in Study 5, as 90.3% were married. The interactions between sexual growth beliefs and marital status predicting sexual satisfaction ( $r = .08$ ,  $SE = .08$ ,  $p = .34$ , 95% CI  $[-.08, .23]$ ) and relationship quality ( $r = -.03$ ,  $SE = .09$ ,  $p = .74$ , 95% CI  $[-.21, .15]$ ) were not significant. Likewise, sexual destiny beliefs were not moderated by marital status when predicting sexual satisfaction ( $r = -.02$ ,  $SE = .04$ ,  $p = .54$ , 95% CI  $[-.10, .05]$ ) or relationship quality ( $r = -.02$ ,  $SE = .04$ ,  $p = .60$ , 95% CI  $[-.10, .05]$ ).

Next we tested whether the associations between sexual growth and destiny beliefs with satisfaction differed based on how frequently participants reported engaging in sex. The interactions between sexual growth beliefs and sexual frequency predicting sexual satisfaction ( $r = -.003$ ,  $SE = .03$ ,  $p = .91$ , 95% CI  $[-.05, .05]$ ) and relationship quality ( $r = -.08$ ,  $SE = .07$ ,  $p = .24$ , 95% CI  $[-.21, .05]$ ) were not significant. The moderation of sexual destiny beliefs by sexual frequency did significantly predict sexual satisfaction ( $r = .06$ ,  $SE = .03$ ,  $p = .03$ , 95% CI  $[-.007, .12]$ ), but not relationship quality ( $r = .06$ ,  $SE = .06$ ,  $p = .26$ , 95% CI  $[-.04, .15]$ ). These results suggest that largely, our effects did not differ based on individuals' sexual frequency levels. However, the positive association between sexual destiny beliefs and sexual satisfaction is enhanced at higher levels of sexual frequency. The fact that the sexual satisfaction of sexual destiny believers is reactive to the level of sex they are having in their relationship may reflect the tendency of these individuals to prioritize sex in their relationships (e.g., "If sexual satisfaction declines over the course of a relationship, it suggests that a couple is not a good match.")

Lastly, given that past research has shown that destiny and growth beliefs can interact to predict outcomes (Knee et al., 2003) we performed subsequent analyses testing whether sexual destiny

beliefs and sexual growth beliefs interacted to predict sexual or relationship quality, and meta-analyzed the interaction term across studies. Sexual growth and sexual destiny beliefs did not significantly interact to predict sexual satisfaction ( $r = -.02$ ,  $SE = .05$ ,  $p = .69$ , 95% CI  $[-.13, .08]$ ) or relationship quality ( $r = .04$ ,  $SE = .05$ ,  $p = .32$ , 95% CI  $[-.04, .13]$ ). Thus, in these studies, unlike research in the general relationship domain (Knee et al., 2003), we did not find evidence that sexual destiny and sexual growth beliefs interacted with each other to predict relationship outcomes.

Overall, these additional analyses suggest that sexual destiny and sexual growth beliefs play a role in shaping relationship and sexual quality beyond general destiny and growth beliefs, and that sexual destiny and sexual growth beliefs seem to affect sexual and relationship quality similarly across a variety of individual and relationship characteristics. We found that our results are generalizable to men and women, those who are dating or married, and those who engage in more or less frequent sex. Lastly, it seems that sexual destiny and sexual growth beliefs have independent influences on satisfaction, as they did not significantly interact to predict outcomes.

## Study 6

Having provided an overall picture of the correlational associations between implicit sexual beliefs and satisfaction, the goal of Study 6 was to expand on these cross-sectional findings by experimentally manipulating sexual destiny and sexual growth beliefs.<sup>16</sup> Experimentally manipulating implicit sexual beliefs, as opposed to examining trait measures, enhances our ability to make causal claims about the role of these beliefs in promoting satisfaction and to rule out the possibility that the associations with satisfaction are driven by other unmeasured variables. We designed an experiment whereby we primed individuals to hold either sexual destiny or sexual growth beliefs and then gave them feedback as to whether they were compatible or incompatible with their romantic partner in either the sexual domain or the financial domain (which served as a relationship-relevant but nonsexual control). We selected financial compatibility as a control in particular because, similar to sexuality, finances are one of the most common reasons couples argue (e.g., Stanley, Markman, & Whitton, 2002), and being financially incompatible with a partner is commonplace (Rick, Small, & Finkel, 2011).

We hypothesized that those primed with sexual destiny beliefs would report lower relationship quality (*Hypothesis 1a*) and lower sexual satisfaction (*Hypothesis 2a*) when they were told that they

<sup>16</sup> We did not combine the results of Study 6 into the meta-analysis for two reasons: We did not want to conflate primed beliefs with stable beliefs, and the effects in Study 6 compare sexual destiny beliefs to sexual growth beliefs as opposed to examining the relative levels of each beliefs as in Studies 1 through 5. To contrast the effects of experimentally primed beliefs relative to the naturally occurring trait beliefs, it may be of interest to consider that in Study 6 the effect size of the difference in relationship satisfaction between manipulated sexual growth and sexual destiny beliefs was  $r = .04$ , which is considerably smaller than the difference between the meta-analyzed effect sizes of sexual growth and sexual destiny from Studies 1 through 5 ( $r = .44$ ). Similarly, in Study 6 the effect size of the difference in sexual satisfaction between manipulated sexual growth and sexual destiny beliefs ( $r = -.002$ ) was considerably smaller than the difference between the meta-analyzed effect sizes of sexual growth and sexual destiny from Studies 1-5 ( $r = .23$ ).

were sexually incompatible with their partner relative to when they were told they were sexually compatible (i.e., a three-way interaction between prime condition [sexual destiny/sexual growth], compatibility level [high/low], and feedback domain [sexual/financial]). We did not expect that receiving feedback that they were financially compatible/incompatible would alter the relationship quality and sexual satisfaction of those primed with sexual destiny beliefs; however, because of the partial overlap between sexual destiny beliefs and broader relational destiny beliefs, we acknowledged the possibility that a small effect could emerge. Given the meta-analysis results regarding the interaction between sexual growth beliefs and compatibility levels, we expected that for those primed with sexual growth beliefs, receiving feedback that they were sexually compatible or incompatible could have a small effect on their relationship quality (*Hypothesis 1b*) and sexual satisfaction (*Hypothesis 2b*), but these effects would be weaker than the effects for those primed with sexual destiny beliefs.

The second purpose of the study was to examine potential explanations for the association between sexual beliefs and satisfaction. We hypothesized that by examining the importance sexual destiny believers place on sex in relationships we may be able to understand our finding (shown in Studies 2–5) that individuals high in sexual destiny beliefs report relationship quality that is contingent on compatibility. More specifically, because individuals high in sexual destiny beliefs inextricably tie their sex life to relationship quality (i.e., good sex = a good relationship), they do not have the opportunity to devalue the sexual domain when this domain is threatened. That is, individuals high in sexual destiny beliefs may consistently assume that sex is an important domain of relationships, regardless of their compatibility levels (*Hypothesis 3a*). Thus, if they feel sexually incompatible with their partner and believe sex is a critical component of relationships, they will consequently experience lower relationship quality.

In contrast, because they do not show a strong association between sexual compatibility and relationship quality, it is possible sexual growth believers are able to view sex as a less important part of relationships when confronted with feedback that they are sexually incompatible with their partner. Namely, individuals high in sexual growth beliefs may be able to circumvent threats in the sexual domain by attributing less importance to sex when they are not doing well in that domain. This tendency would be similar to past work that has found that newlyweds can alter the perceived importance of specific relationship standards (e.g., “My partner and I should have the same ideas about values”) based on whether their marriage currently is meeting that standard, which in turn predicts marital satisfaction (Neff & Karney, 2003). Specifically, we predicted that those primed with sexual growth beliefs will downplay the importance of sex—at least temporarily—when they find out they are sexually incompatible, relative to when they are told they are sexually compatible (*Hypothesis 3b*). Moreover, this flexibility in altering the importance of sex (i.e., lower importance when not compatible, higher importance when compatible) will predict higher relationship quality (*Hypothesis 3c*). Individuals high in sexual growth beliefs may still feel the need to work on their sex life but be able to disassociate the importance of the sexual domain from their overall relationship.

Further, we sought to provide evidence of the usefulness of construing sexual growth and destiny beliefs as separate constructs rather than opposite poles of a single construct. Specifically, the

unidimensional approach suggests that individuals high in sexual destiny beliefs should be unlikely to engage in sexual growth-related behaviors, such as a willingness to make sexual changes in their relationship. However, our bidimensional approach allows individuals to be high, or low, on both beliefs. That is, it leaves room for the possibility that those high in sexual destiny beliefs can also be willing to work on their sexual relationships. Specifically, we predicted that those high in sexual destiny beliefs should be willing to make efforts to meet their partner’s sexual needs if and only if they believe they are a natural sexual match with their partners (*Hypothesis 4a*), similar to how destiny believers show relationship-enhancing behavior if they are confident they are with their soulmate (Franiuk et al., 2004). That is, individuals high in sexual destiny beliefs may be willing to exert effort to appease a partner and improve their already positive sexual relationship if they believe this partner is their sexual soulmate. In contrast, we expected sexual growth believers, who believe sexual satisfaction takes effort and work to maintain, should report more willingness to put in work and make sexual changes for their partner, regardless of their sexual compatibility (*Hypothesis 4b*). We hypothesized that this willingness to make sexual changes for a partner will predict enhanced sexual satisfaction (*Hypothesis 4c*) in light of work that feeling good about making sexual changes for your partner, and being willing to meet a partner’s sexual needs are associated with relational and sexual benefits (e.g., Burke & Young, 2012; Day et al., 2015; Muise & Impett, 2015).

## Method

**Participants.** Five hundred thirty-six undergraduate students from the University of Toronto and the University of Toronto Mississauga participated in this study. An a priori power analysis using G\*Power suggested that assuming a relatively small effect of  $f = .15$ ,<sup>17</sup> we would need 351 participants to detect a three-variable interaction as per Hypotheses 1 and 2 (between prime condition [sexual destiny/sexual growth], feedback domain [sexual/financial] and compatibility[high/low]). However, we oversampled to increase the reliability of our effect and ensure enough power after any exclusions based on suspicion or exclusions based on failing to respond to the manipulations as intended. We recruited participants from introductory psychology courses, from flyers posted around campus, and from advertisements in student Facebook groups. We compensated participants with either \$10 or course credit. To be eligible to participate, participants had to be involved in a romantic relationship longer than 6 months, be sexually active, and not have taken upper year psychology courses (to reduce suspicion of deception). At the outset of the study, we decided to only include in the analysis individuals who did not express suspicion (determined using funnel debriefing administered on the computer at the end of Part 2) and who passed manipulation checks for both our manipulations. Of the 536 individuals recruited, 373 participants (294 female, 78 male, 1 prefer not to disclose) met this criterion and were included in our analyses (see supplemental materials Table S2 for exclusion breakdown). Participants ranged in age from 16 to 40 ( $M = 19.8$ ,  $SD =$

<sup>17</sup> We estimated this effect size given the small effect sizes observed in the previous studies, and that a conceptually similar interaction in Franiuk et al., 2004 had a medium effect size.

3.37) and had been in their relationships on average 1 year, 10 months ( $SD = 1$  year, 7 months, range 6 months to 13 years 10 months). As in the other studies, participants were of various ethnicities (57.7% Caucasian/European, 36.8% Asian 5.1% Latin, 6.7% Black, 6.2% Arabic, 1.9% Aboriginal, 6.4% other/chose not to answer).

#### Procedure.

**General study design.** Participants first completed an online questionnaire in which they answered questions about themselves and their partner. A week later in the lab, they were randomly assigned to be primed with either sexual destiny or sexual growth beliefs, after which they were randomly assigned to receive one of four bogus compatibility feedback reports (domain [sexual vs. financial]  $\times$  compatibility feedback [compatible vs. not compatible with partner]; see Figure 4 for experiment overview). Participants were told this feedback came from comparing their partner's answers on the online questionnaire to their own answers, but in reality, partners were *not* contacted to complete surveys, and the online questionnaire was not analyzed in any way. That is, the compatibility feedback was entirely fabricated and randomly assigned.

**Online pretest.** Ten to 12 days prior to their scheduled in-lab session, we e-mailed participants an online survey to complete. We instructed participants to complete the survey at least five days before their in-lab session, or we would cancel their session. On a scale from 1 (*strongly disagree*) to 7 (*strongly agree*), participants rated their agreement with 36 items that we created regarding a partner's typical behavior/actions. Participants then rated their own behavior using the same items. These items ostensibly formed the basis for the compatibility feedback the participants received in the lab, but in reality we did not analyze these items in any way. Similar to Franiuk and colleagues (2004), we created arbitrary items such as "My partner has neat handwriting," "My partner is always on time," and created additional items that could conceivably be associated with financial compatibility (e.g., "My partner

likes to keep a budget") or sexual compatibility (e.g., "My partner likes to try new things") to bolster the cover story of the in-lab compatibility results. Participants then rated the same items reworded to reflect their own behavior (e.g., "I have neat handwriting"). We purposely created items that were not explicitly sexual in nature so that the items could seem equally applicable regardless of whether the participant was assigned to receive sexual or financial feedback during the in-lab session.

At the end of the online session, we asked for their partner's e-mail address under the guise that we would be randomly e-mailing some participants' partners to confirm their relationship status. In reality, we collected the participant's partner's e-mail to bolster our feedback manipulation cover story, which was that unbeknownst to the participant, we had contacted his or her partner to fill in a survey, compared the participant's answers to his or her partner's answers, and then computed a compatibility score. In reality, however, we did not contact any partners, and partners did not complete a survey.

**In-lab session.** Upon arriving at the lab, the experimenter told participants the in-lab session had two separate parts: reading and answering questions about an article, and a second part answering questions about themselves and their relationship. The experimenter told participants that later in the session they would receive feedback based on their responses to the online pretest.

**Part 1 article prime (to manipulate sexual destiny and sexual growth beliefs).** Participants were told that the researchers were interested in looking at how people understand and interpret research published in the popular media. Participants were asked to carefully read an article that ostensibly had been published in a popular psychology magazine and were told they would be asked to respond to questions about the article. The bogus article used fabricated anecdotes and research to support either sexual destiny or sexual growth beliefs (see Appendix S1 in supplemental materials). This magazine/article paradigm has been used to successfully prime other implicit theories in past work (e.g., Chiu et al., 1997; Franiuk et al., 2004), and other research has similarly used a two-prime design to manipulate either destiny or growth themes (Franiuk et al., 2004; Lee & Schwarz, 2014). The sexual destiny article was entitled "Secrets to an Amazing Sex Life: It's in That Initial Spark" and focused on how sexual satisfaction is facilitated by finding a good sexual match from the outset of a relationship, whereas the sexual growth article was entitled "Secrets to an Amazing Sex Life: You May Need to Work at It" and focused on the importance of putting in effort and working to be sexually satisfied.

An online pilot test on MTurk ( $N = 128$ ) confirmed that this sexual destiny article resulted in greater agreement (1 = *strongly disagree*; 7 = *strongly agree*) with the sexual destiny manipulation check item, "How important is it that a sexual relationship starts off well?" ( $M = 6.18$ ,  $SD = 1.13$ ) relative to the sexual growth article ( $M = 3.31$ ,  $SD = 1.75$ ),  $t(124) = 11.15$ ,  $p < .001$ , whereas the sexual growth article resulted in greater agreement with the sexual growth manipulation check item, "How much can one work to improve their sex life?" ( $M = 6.44$ ,  $SD = .68$ ) relative to the sexual destiny article ( $M = 3.78$ ,  $SD = 1.72$ ),  $t(125) = -11.10$ ,  $p < .001$ .

#### Part 2 false feedback (to manipulate compatibility).

**Pilot test.** To ensure that the false feedback manipulation we designed to alter people's feelings of compatibility with their partner was effective and believable, we first conducted a pilot study on MTurk ( $N = 205$ ), using a separate sample from the

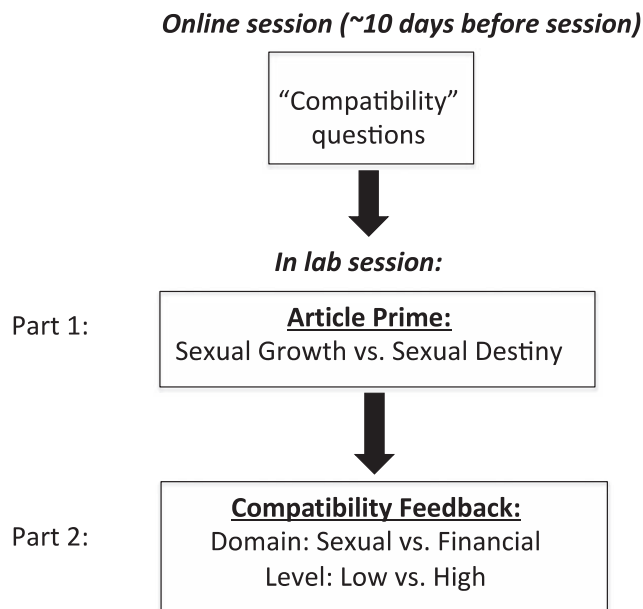


Figure 4. Overview of Study 6 experimental procedure.

article prime pilot test. We administered the fabricated compatibility questions (the same questions administered in the online pretest portion for the actual experiment) to participants, and then a week later provided them feedback that they were either sexually compatible, sexually incompatible, financially compatible, or financially incompatible. This pilot test revealed a relatively low rate of suspicion regarding the feedback (6%), and the manipulation check confirmed that those who were told they were not sexually compatible more highly endorsed (1 = *very unlikely*, 7 = *very likely*) the item “My partner and I are likely to face sexual issues in our relationship.” ( $M = 4.33$ ,  $SD = 1.81$ ) relative to those who were told they were sexually compatible ( $M = 2.32$ ,  $SD = 1.48$ ),  $t(97) = 6.06$ ,  $p < .001$ . Similarly, those told they were financially incompatible more strongly endorsed the manipulation check “My partner and I are likely to face financial issues in our relationship.” ( $M = 4.46$ ,  $SD = 1.72$ ) than those who were told they were compatible ( $M = 2.84$ ,  $SD = 1.73$ ),  $t(104) = 4.82$ ,  $p < .001$ . Based on the comments participants provided us in the pilot session, we amended the feedback to first remind participants of a sample compatibility question they answered the week prior and amended the feedback to appear more “scientific” by attaching a particular numerical value to the compatibility levels.

**In-lab experiment.** After participants completed the article prime in Part 1, the experimenter entered the room and told participants that the lab had been working on a compatibility model that examines different aspects of relationships. Based on random assignment, the experimenter told participants that the researchers looked at either their sexual or financial compatibility with their partner. The experimenter told participants that the researchers had actually contacted their partner using the e-mail they provided in the online session and that their partner had completed the same questionnaire they themselves had completed. The experimenter explained that the researchers had compared the participant’s own responses to their partner’s responses on items such as “I keep a budget” (financial condition) and “I am a risk taker” (sexual condition) and computed their compatibility. The experimenter verbally explained the participant’s compatibility score, which we randomly assigned to be either high or low, and then handed the participant the compatibility results sheet for further details. The experimenter told participants to begin the last questionnaire whenever they were finished reading the compatibility feedback form.

For the low compatibility condition, the experimenter verbally told the participants that

[u]nfortunately, the result shows that you and your partner’s sexual/financial compatibility is really low. It falls only in the 9<sup>th</sup> percentile, which means your compatibility is only higher than 9 percent of couples, and you are likely to face sexual/financial issues over time.

Whereas, in the high compatibility condition, the experimenter told participants

[c]ongratulations! The result shows that you and your partner’s sexual/financial compatibility is very high. It falls in the 91<sup>st</sup> percentile, which means your compatibility is higher than 91 percent of couples, and you are *not* likely to face sexual/financial issues over time.

The experimenter then gave the participant the compatibility results sheet (see Appendix S2 in supplemental materials).

**Measures.** Following the feedback, participants then indicated their *sexual satisfaction* (GMSEX;  $M = 6.14$ ,  $SD = .86$ ,  $\alpha = .92$ ), and their *relationship quality* (PRQC satisfaction and commitment;  $M = 6.24$ ,  $SD = .76$ ,  $\alpha = .90$ ) using the same measures detailed in previous studies.

**Importance of sex.** Participants in all conditions indicated “How important is sex to you” on a scale from 1 (*not at all important*) to 7 (*extremely important*;  $M = 5.46$ ,  $SD = 1.03$ ).

**Sexual accommodations.** Participants in all conditions were asked to assume that their partner would like them to make a change regarding a specific aspect of their sexual relationship (frequency of sex, type of sexual activity, intimacy and communicating about sex) and report on the changes they would intend to make for their partner over the next month (Burke & Young, 2012). We asked participants how positively they would feel about making the change and how often they would make the change, which were highly correlated,  $r = .66$ ,  $p < .001$  and combined to form a composite willingness to accommodate measure ( $M = 5.36$ ,  $SD = .98$ ,  $\alpha = .87$ , 8 items).

## Results

**Article prime manipulation check.** On a scale from 1 = *strongly disagree* to 7 = *strongly agree* those who read the sexual destiny article ( $M = 5.97$ ,  $SD = 0.99$ ) more strongly endorsed “How important is it that a sexual relationship starts off well?” than those who read the sexual growth article ( $M = 3.09$ ,  $SD = 1.55$ ),  $t(371) = 21.20$ ,  $p < .001$ , 95% CI [2.61, 3.15], whereas those who read the sexual growth article ( $M = 6.26$ ,  $SD = 0.82$ ) more strongly endorsed “How much can one work to improve their sex life?” than those in the sexual destiny condition ( $M = 3.64$ ,  $SD = 1.64$ ),  $t(371) = -19.71$ ,  $p < .001$ , 95% CI [-2.88, -2.36].

**Feedback manipulation check.** In the financial feedback condition, those in the low compatibility condition ( $M = 5.09$ ,  $SD = 1.23$ ) were more likely to agree with the statement “My partner and I are likely to face financial issues in our relationship” (1 = *strongly disagree*, 7 = *strongly agree*) than those in the high feedback condition ( $M = 2.84$ ,  $SD = 1.24$ ),  $t(203) = 13.045$ ,  $p < .001$ , 95% CI [1.90, 2.58]. Likewise, in the sexual feedback condition, those who were told they were low in compatibility ( $M = 4.71$ ,  $SD = 1.25$ ) more strongly agreed with “My partner and I are likely to face sexual issues in our relationship” (1 = *strongly disagree*, 7 = *Strongly agree*) than those in the high compatibility condition ( $M = 2.55$ ,  $SD = 1.33$ ),  $t(163) = 10.77$ ,  $p < .001$ , 95% CI [1.77, 2.57].

**Analytic approach.** For all analyses, we conducted multiple regression analyses where we entered as effect-coded predictor terms article condition (sexual growth = -1, sexual destiny = 1), feedback domain (sexual = -1, financial = 1), and compatibility level (low = -1, high = 1), and all possible interactions.

**Relationship quality.** We first tested whether the article and feedback manipulation affected relationship quality. There was a significant main effect of compatibility feedback level, such that high compatibility feedback was associated with greater relationship quality ( $b = .13$ ,  $SE = .04$ ,  $p = .002$ , 95% CI [.05, .20]) than low compatibility feedback. In line with Hypothesis 1, this was qualified by an article-by-compatibility feedback interaction ( $b = .08$ ,  $SE = .04$ ,  $p = .043$ , 95% CI [.003, .16], see Figure 5). For participants primed with sexual destiny beliefs, those who received

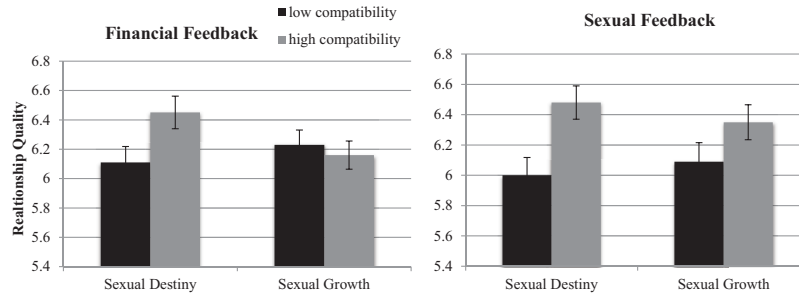


Figure 5. Article by feedback domain by compatibility interaction predicting relationship quality.

the high compatibility feedback reported greater relationship quality ( $b = .20, SE = .06, p < .001, 95\% CI [.10, .31]$ ) than those who received the low compatibility feedback. In contrast, compatibility feedback did not influence relationship quality for participants primed with sexual growth beliefs ( $b = .05, SE = .06, p = .41, 95\% CI [-.06, .15]$ ). However, in contrast to our prediction that this would only be true in the sexual domain, the article-by-compatibility feedback interaction was *not* further qualified by feedback domain ( $b = .02, SE = .04, p = .55, 95\% CI [-.05, .10]$ ), suggesting that this pattern occurred for both sexual and (unexpectedly) financial feedback.

**Sexual satisfaction.** There were main effects of feedback domain ( $b = .10, SE = .04, p = .021, 95\% CI [.02, .19]$ ), such that participants in the financial condition reported higher satisfaction, and of compatibility feedback level ( $b = .19, SE = .04, p < .001, 95\% CI [.10, .28]$ ), such that those in the higher compatibility condition reported higher satisfaction. These main effects were qualified by a significant domain-by-compatibility feedback interaction ( $b = -.10, SE = .04, p = .032, 95\% CI [-.18, -.008]$ ). In the financial condition, there was no effect of compatibility feedback ( $b = .09, SE = .06, p = .11, 95\% CI [-.02, .21]$ ), whereas in the sexual condition, participants who were told that they were sexually compatible with their partner reported higher sexual satisfaction than those who were told they were sexually incompatible ( $b = .28, SE = .07, p < .001, 95\% CI [.16, .41]$ ). However, in contrast to Hypothesis 2, the compatibility-by-feedback domain interaction was not further qualified by sexual belief prime ( $b = .02, SE = .04, p = .63, 95\% CI [-.07, .11]$ ). Despite a nonsignif-

icant interaction, we continued to probe the three-way interaction (e.g., Hayes, 2005; Tybout et al., 2001) to examine whether there were differences based on article prime condition as hypothesized (Hypothesis 2). For those primed with sexual growth beliefs ( $b = -.11, SE = .06, p = .06, 95\% CI [-.24, .005]$ ) the effect of compatibility on sexual satisfaction marginally depended on whether the compatibility feedback was financial or sexual (a compatibility level by domain interaction). Specifically, for those primed with sexual growth beliefs being told one was sexually compatible versus incompatible was associated with higher sexual satisfaction ( $b = .27, SE = .10, p = .004, 95\% CI [.09, .46]$ ), but being told one was financially compatible versus incompatible did not significantly affect sexual satisfaction ( $b = .04, SE = .08, p = .59, 95\% CI [-.11, .20]$ ). This was not true for those primed with sexual destiny beliefs ( $b = -.07, SE = .06, p = .24, 95\% CI [-.20, .05]$ ). In contrast, for those primed with sexual destiny beliefs, those given the high compatibility feedback reported higher sexual satisfaction than those given the incompatibility feedback, regardless of whether it was financial compatibility feedback (marginal;  $b = .15, SE = .09, p = .10, 95\% CI [-.02, .32]$ ) or sexual compatibility feedback ( $b = .29, SE = .09, p = .001, 95\% CI [.12, .47]$ ).

**The importance of sex.** In support of Hypothesis 3a, there was a significant main effect of article condition ( $b = .15, SE = .05, p = .007, 95\% CI [.04, .25]$ ), where those in the sexual destiny condition ( $M = 5.61, SE = .08$ ) rated sex as more important than those in the sexual growth condition ( $M = 5.32, SE = .08$ ). However, as anticipated, these main effects were qualified by a

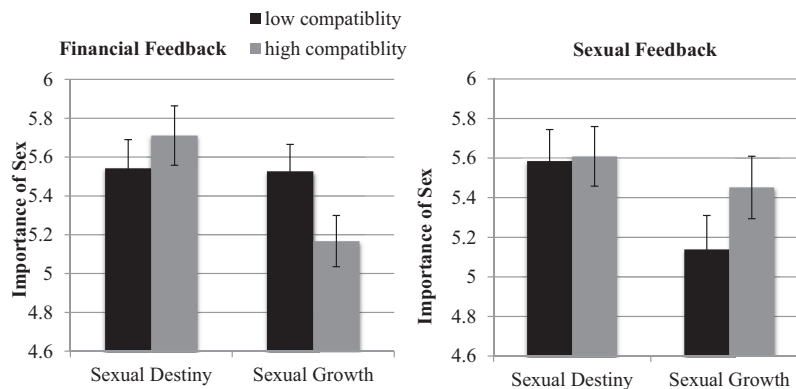


Figure 6. Article by feedback domain by compatibility interaction predicting ratings of the importance of sex.

marginal three-way interaction ( $b = .10$ ,  $SE = .05$ ,  $p = .057$ , 95% CI  $[-.003, .21]$ ; see Figure 6). As predicted in Hypothesis 3b, feedback domain interacted with compatibility to predict importance of sex for those in the sexual growth condition ( $b = -.17$ ,  $SE = 0.08$ ,  $p = .026$ , 95% CI  $[-.32, -.02]$ ) but not for those in the sexual destiny condition (Hypothesis 3a;  $b = .04$ ,  $SE = .08$ ,  $p = .63$ , 95% CI  $[-.11, .19]$ ). More specifically, individuals in the sexual growth condition who received high sexual compatibility feedback, relative to those who received low sexual compatibility feedback, tended to rate sex to be more important ( $b = .16$ ,  $SE = .11$ ,  $p = .18$ , 95% CI  $[-.07, .39]$ ), providing support for Hypothesis 3b. In contrast, in the financial condition, individuals primed with sexual growth who were given high relative to low financial compatibility feedback rated sex to be less important ( $b = -.18$ ,  $SE = .10$ ,  $p = .06$ , 95% CI  $[-.37, .008]$ ). Put another way, confirming Hypothesis 3a, participants primed with sexual destiny beliefs tended to rate sex as more important, relative to those primed with sexual growth beliefs, regardless of compatibility feedback. In contrast, as predicted in Hypothesis 3b, participants primed with sexual growth beliefs adjusted their importance ratings of sex depending on compatibility such that they enhanced (although nonsignificantly so) the importance of sex when told they were sexually compatible versus incompatible, and downplayed the importance of sex when they were told they were financially compatible versus incompatible.

**Sexual accommodations.** When predicting willingness to make sexual accommodations, there was a marginal main effect of compatibility ( $b = .10$ ,  $SE = .05$ ,  $p = .06$ , 95% CI  $[-.004, .20]$ ), whereby those who were told they were compatible were more willing to make sexual accommodations ( $M = 5.47$ ,  $SE = .07$ ) compared with those who were told they were incompatible ( $M = 5.27$ ,  $SE = .07$ ). No other effects were significant ( $ps > .10$ ). However, to test our a priori prediction that sexual destiny believers would be less willing to accommodate their partner if they felt they were sexually incompatible, we examined the simple effects. Confirming Hypothesis 4, participants primed with sexual destiny beliefs and given high relative to low sexual compatibility feedback were more willing to make sexual accommodations ( $b = .25$ ,  $SE = .10$ ,  $p = .02$ , 95% CI  $[.05, .46]$ ), whereas sexual compatibility level was not associated with willingness to make sexual accommodations for participants primed with sexual growth beliefs ( $b = .05$ ,  $SE = .11$ ,  $p = .66$ , 95% CI  $[-.17, .27]$ ). In the financial condition, compatibility did not influence the sexual accommodations for either the sexual destiny condition ( $p = .74$ ) or the sexual growth condition ( $p = .57$ ).

**Explaining satisfaction.** For the remaining analyses, we examined only those in the sexual condition ( $N = 165$ ), because our hypotheses regarding an explanation for our effects pertained only to this condition. We expected that downplaying the importance of sex when incompatible (Hypothesis 3c) and greater willingness to make sexual accommodations (Hypothesis 4c) would facilitate relationship quality and sexual satisfaction. There was a significant three-way interaction between article, compatibility, and sex importance ratings for relationship quality ( $b = .17$ ,  $SE = .06$ ,  $p = .007$ , 95% CI  $[.04, .28]$ ), such that compatibility level significantly interacted with sex importance ratings to predict relationship quality for those in the sexual destiny condition ( $b = .20$ ,  $SE = .08$ ,  $p = .02$ , 95% CI  $[.03, .36]$ ), but not the sexual growth condition ( $b = -.14$ ,  $SE = .09$ ,  $p = .12$ , 95% CI  $[-.31, .04]$ ). When

participants primed with destiny beliefs received sexual incompatibility feedback, higher ratings of sex importance significantly detracted from relationship quality ( $b = -.22$ ,  $SE = .11$ ,  $p = .049$ , 95% CI  $[-.44, -.0003]$ ). In contrast, when they received high sexual compatibility feedback the effect of sex importance on relationship quality was positive (and nonsignificant;  $b = .17$ ,  $SE = .12$ ,  $p = .17$ , 95% CI  $[-.07, .41]$ ). When participants primed with sexual growth beliefs received sexual incompatibility feedback, higher sex importance was marginally positively associated with relationship quality ( $b = .24$ ,  $SE = .14$ ,  $p = .09$ , 95% CI  $[-.04, .51]$ ). In contrast, when they received high sexual compatibility feedback, sex importance did not significantly predict relationship quality ( $b = -.04$ ,  $SE = .11$ ,  $p = .74$ , 95% CI  $[-.24, .17]$ ). The same pattern of results did not emerge when predicting sexual satisfaction, a point to which we return to in the study discussion.

Although we did not have specific predictions, we explored whether willingness to make sexual accommodations would differentially predict satisfaction for those primed with sexual destiny relative to sexual growth beliefs. Although there was no significant three-way interaction between article, compatibility and sexual accommodation for sexual satisfaction ( $b = .06$ ,  $SE = .07$ ,  $p = .42$ , 95% CI  $[-.09, .21]$ ), we continued to examine simple effects. For those primed with sexual destiny beliefs, there was a significant interaction between willingness to make sexual accommodations and compatibility level for sexual satisfaction ( $b = .26$ ,  $SE = .12$ ,  $p = .02$ , 95% CI  $[.04, .49]$ ), whereas this interaction was not significant for those primed with sexual growth beliefs ( $b = .14$ ,  $SE = .10$ ,  $p = .13$ , 95% CI  $[-.04, .33]$ ). Specifically, for those primed with sexual destiny beliefs, willingness to make sexual accommodations predicted higher sexual satisfaction when compatibility was high ( $b = .53$ ,  $SE = .16$ ,  $p = .001$ , 95% CI  $[.21, .84]$ ) but not low ( $b = -.002$ ,  $SE = .17$ ,  $p = .99$ , 95% CI  $[-.33, .32]$ ).

To ensure the above effects were specific to the sexual domain, we repeated these analyses within the financial condition ( $N = 208$ ). Compatibility did not interact with sex importance to predict relationship quality in the financial condition for either sexual destiny or sexual growth conditions ( $ps > .33$ ). Likewise, compatibility did not interact with willingness to make sexual accommodations to predict sexual satisfaction for either sexual destiny or sexual growth conditions ( $ps > .34$ ). This suggests the pattern of results observed was specific to the sexual domain.

## Discussion

In this study, we replicated the key effect of Studies 2 to 5—that sexual destiny believers are sensitive to sexual compatibility—with experimentally manipulated sexual destiny beliefs. This same sensitivity to compatibility was not observed in those primed with sexual growth beliefs. Because participants were randomly assigned to condition, this enhances our confidence that it is the endorsement of sexual destiny beliefs, and not a third variable, driving our effects. We did not observe the same pattern of results for sexual satisfaction; instead, we found that regardless of the sexual destiny or sexual growth prime, being told you were more sexually compatible was associated with higher sexual satisfaction. This finding parallels past work in the general relationship domain that found that when participants recalled *positive* relationship



events, priming destiny and growth-like themes (unity vs. journey frames of mind) did not affect relationship satisfaction (Lee & Schwarz, 2014). We had expected that participants primed with sexual destiny beliefs would show this pattern of higher sexual satisfaction at high relative to low compatibility; however, we were not expecting to see this pattern to the same extent for those primed with sexual growth beliefs. Finding that sexual compatibility also influenced the sexual satisfaction of those primed with sexual growth may suggest that the compatibility manipulation—which we devised to reflect extreme endpoints of compatibility—was so strong it overwhelmed any potential effects of the article prime on sexual satisfaction (i.e., regardless of sexual destiny or sexual growth beliefs, being told you are in the 9th or 91st percentile of sexual compatibility may lead to lower, or higher sexual satisfaction respectively). Moreover, our use of strong compatibility feedback again highlights a possible limit to sexual growth beliefs: Higher sexual growth beliefs may not facilitate higher sexual satisfaction at such low levels of compatibility. We anticipate that sexual growth beliefs would have a positive effect on sexual satisfaction if participants received more moderate compatibility feedback (e.g., being in the 60th percentile of sexual compatibility), which would be more analogous to the moderate to high compatibility levels reported in Studies 2 through 5.

The finding that individuals high in sexual destiny beliefs have relationship quality that is reactive to compatibility levels may be elucidated by understanding the importance these individuals place on sex. We observed that overall, sexual destiny beliefs caused higher importance ratings of sex. Participants primed with sexual destiny beliefs continued to value sex even when they were told they are sexually incompatible, which detracted from their relationship quality. In contrast, we found preliminary evidence that individuals primed with high sexual growth beliefs calibrated their importance ratings of sex in an adaptive fashion—differentially rating the importance of sex based on compatibility. In fact, even if the individual primed with sexual growth beliefs felt sex was important in the sexually incompatible condition, this importance was (marginally) positively associated with relationship quality (unlike the negative association between sex importance and relationship quality observed for individuals primed with sexual destiny beliefs). Coupling this finding with the fact that sexual growth individuals were willing to make sexual changes for their partner even when incompatible, suggests that individuals primed with sexual growth are not threatened by incompatibility information and still think it is important to work on the sexual relationship in such cases. Those primed with sexual growth may be deeming sex to be more/less important to maintain their global relationship views, but their belief in effort and work allows them to remain committed on working to improve their sexual relationship. Further, those in the sexual growth condition rated sex as *more* important when they received low financial compatibility feedback, relative to high financial compatibility feedback. This may suggest that when they found out they were incompatible in one relationship domain (finances), they compensated by rating a separate domain (their sex life) as more important. These findings suggest that sexual growth believers may be flexibly altering the importance of domains depending on their performance, a tendency which has been linked to higher and more stable marital satisfaction (Neff & Karney, 2003). Conversely, those induced to be high in sexual destiny beliefs showed no such flexibility in rating the importance of sex.

Participants primed with sexual destiny beliefs were only willing to make sexual accommodations for their partner when they were told they were sexually compatible as opposed to incompatible. Conversely, participants primed with sexual growth beliefs were willing to make sexual accommodations regardless of whether they were told they were sexually compatible or incompatible. This is consistent with how individuals high in sexual growth beliefs endorse that you can work to resolve incompatibilities, that is, they view compatibility as changeable. Further, for those primed with sexual destiny beliefs, a greater willingness to make sexual accommodations only predicted greater sexual satisfaction when compatibility was high, relative to low. These findings suggest that sexual destiny believers are not necessarily opposed to exerting effort in the bedroom; they may indeed be open to making efforts to please their partner if they are confident they are with a good sexual match. It is important to keep in mind that in this study, we directly specified that their partner wanted the participant to make a change; thus, sexual destiny believers may not spontaneously feel they need to make changes when they are a good sexual match with their partner but would be willing to make those changes and enhance their sexual relationship if their partner requested them. It is also possible that if a sexual destiny believer feels compatible with a partner they may even assume they would enjoy their partner's suggestion, and hence making a sexual change is not an onerous task. This presents an intriguing possibility that could be addressed in future research: Perhaps destiny believers put effort into maintaining their relationships, but unlike growth believers do not construe this as "work." In contrast, individuals primed with sexual growth beliefs are willing to make sexual accommodations for their partner regardless of whether or not they feel compatible. This finding parallels what is seen in the broader implicit theory literature, particularly implicit theories of intelligence, which find that incremental (growth) theorists have a mastery as opposed to helpless orientation (e.g., Blackwell et al., 2007; Paunesku et al., 2015), meaning that even when faced with challenges, they maintain a positive attitude and exert effort to improve their outcomes.

In this study we find some support that the effects of implicit sexual beliefs are particularly about the sexual domain, and do not extend to other relational domains (finances). For example, we found that: financial compatibility did not interact with willingness to make sexual accommodations or importance of sex to predict relationship quality or sexual satisfaction, sexual destiny-primed individuals were not more willing to make sexual accommodations when given higher financial feedback, and sexual growth-primed individuals' sexual satisfaction was not affected by financial compatibility. However we did find that those primed with sexual destiny beliefs were affected by financial compatibility when predicting their relationship quality and (marginally) sexual satisfaction. This finding may be a function of some of the conceptual overlap between sexual destiny beliefs with broader relationship beliefs, or may suggest sexual destiny believers interpreted extremely low financial compatibility as a sign they would likely also encounter incompatibilities in the bedroom.

## General Discussion

Our studies provide the first empirical evidence that individuals' lay beliefs about how sexual satisfaction is achieved are associated

with their relationship and sexual quality, and affect their responses to sexual disagreements in their relationship. Across six studies, we created and validated a measure to assess individuals' lay beliefs about how sexual satisfaction is maintained over time. Using cross-sectional, daily diary, dyadic and experimental methods, we showed that sexual destiny and sexual growth beliefs are important for understanding sexual and relationship satisfaction. As predicted, believing sexual satisfaction requires effort and work to maintain—sexual growth beliefs—was associated with higher sexual satisfaction and relationship quality. Believing that sexual satisfaction is derived by finding a compatible partner—sexual destiny beliefs—related to relationship quality that was contingent upon the current circumstances of the sexual relationship.

In Studies 1 and 2 we used large online samples to create and validate a measure of sexual destiny and sexual growth beliefs. These studies provided initial evidence that sexual growth beliefs are associated with higher sexual and relationship satisfaction, whereas the degree of sexual disagreements in one's relationship determines the quality of relationships for those high in sexual destiny beliefs. When they are encountering high levels of sexual disagreements in their relationships, those high in sexual destiny beliefs experience lower relationship quality, relative to those lower in sexual destiny beliefs. We replicated the same pattern of results in Study 3 using a different design, showing that the effect of daily sexual destiny beliefs on daily sexual experiences is contingent on levels of sexual disagreement that day. We also found that daily sexual growth beliefs are associated with higher daily relationship quality and more positive sexual experiences. In Studies 4 and 5 we examined how romantic partners' sexual beliefs affect each other's satisfaction. In Study 4 we found limited evidence that a partner's sexual destiny or growth beliefs are associated with one's own sexual or relationship satisfaction. However, sexual growth beliefs were associated with higher sexual and relationship satisfaction in a sample of couples undergoing the transition to parenthood (Study 5), a time period when many couples face challenges maintaining sexual satisfaction and frequency (Haugen et al., 2004). In Study 5, we saw that sexual growth beliefs were not only positively associated with one's own sexual and relationship satisfaction, but also with one's partner's sexual and relationship satisfaction. We once again found evidence in Study 4 (using a measure of couple level sexual disagreement) and Study 5 (using a measure of ideal sexual partner) that sexual destiny believers experience lower relationship quality when they are doubting fit with their partner. Further, we demonstrated the robustness of our findings across studies by performing a meta-analysis. Lastly, in Study 6 we provide evidence for the causal role of the beliefs in satisfaction by showing that those primed with sexual destiny beliefs, who are led to think they are sexually incompatible with their partner, evidence lower relationship quality. We also find that, unlike those primed with sexual growth beliefs, those primed with sexual destiny beliefs value the importance of sex regardless of compatibility levels, and will only make sexual changes for a partner if they feel compatible.

When combining across the effects of all correlational studies, we find support for our main hypothesis that high (relative to low) sexual growth believers are more sexually and relationally satisfied, and sexual destiny believers have relationship quality (but not sexual satisfaction) that is reactive to signs of incompatibility with their partner. We also observed that high sexual destiny believers

are more sexually satisfied than low sexual destiny believers, an association that may arise for several reasons. It is possible that sexual destiny believers only stay with romantic partners with whom they perceive they are relatively sexually compatible (a finding parallel to destiny believers in the broader relationship domain; Knee, 1998). If sexual destiny believers are generally with partners whom they see as ideal or sexually compatible with them, then their higher sexual satisfaction is in line with other work on the positive associations between partner ideals (Cunningham et al., 2015; de Jong & Reis, 2015), as well as sexual compatibility (Mark et al., 2013), with higher sexual satisfaction. Further, because sexual destiny believers place a high importance on sex in their relationship, they may be engaging in behaviors to ensure they remain sexually satisfied, such as more frequent sex (an association observed in Studies 2, 3, and 4—although the sexual destiny effect on sexual satisfaction remains controlling for sexual frequency). Future work should explore the reasons why sexual destiny believers may evidence higher sexual satisfaction as well as how their sexual satisfaction might change over the course of time during relationships.

Counter to our initial predictions, an additional finding that emerged in the meta-analysis was that sexual growth believers did have relationship quality and sexual satisfaction that were reactive to sexual incompatibility. We did not expect this finding given that sexual growth believers think that sexual disagreements can be overcome, and hence should feel less threatened by them. However, our findings are in line with the findings of Knee and colleagues (2004, Study 1) in the general relationship domain, that even high relationship growth believers experience drops in commitment on days they experience greater conflict—their drops are just less pronounced relative to those lower in growth beliefs. In our work, the pattern of results echoes Knee and colleague's findings in that we observed that the positive association between sexual growth beliefs and sexual satisfaction was weakened at high levels of incompatibility. Similarly, Franiuk and colleagues find that the relationship satisfaction of high growth believers is sensitive to level of fit with their partner (Franiuk et al., 2004). Perhaps if sexual incompatibilities are too great with a partner, sexual growth believers no longer try as hard as they typically do to resolve these differences, and hence the benefits of sexual growth beliefs are lessened. Or, perhaps individuals high in sexual growth beliefs are only bothered by more substantial incompatibilities with a partner. Even though these individuals believe differences in the bedroom can be overcome, there may be a limit to the types of incompatibilities they are willing to work through. This is consistent with our finding in Study 6 that individuals primed with sexual growth beliefs were not more sexually satisfied than individuals primed with sexual destiny beliefs at extremely low levels of compatibility. It is reasonable to expect that sexual growth beliefs are not a universal buffer for all levels of sexual incompatibility, and that there are times where trying to “work it out” may not be best for one's relationship (similar to the limits of other positive processes in relationships, e.g., McNulty, 2010; Menzies-Toman & Lydon, 2005). Future research can continue to explore the potential boundaries of the benefits of sexual growth beliefs. For example, it is possible, similar to work in the general relationship domain (Kammrath, & Peetz, 2012), that those higher in sexual growth beliefs become more frustrated with their partners if their partner is not successful in making desired changes in the bedroom.

Importantly, we also performed a meta-analysis on the influence of demographic and relationship factors across studies to show the generalizability of our findings. There tended to be demographic differences in the extent to which each belief was endorsed (see Table 8), such that sexual destiny beliefs tended to be more strongly endorsed by men, those in shorter relationships, and those having more frequent sex, whereas sexual growth beliefs tended to be more strongly endorsed by women. Yet, despite these differences in endorsement, sexual growth and destiny beliefs functioned similarly for men and women, and across a variety of relationship characteristics. An additional strength of this research is that we found our effects using three different measures of relationship quality across the studies. Further, we operationalized incompatibility in four different ways—including sexual disagreement, couple average sexual disagreement, perceptions that a partner is a sexual ideal, and false “scientific” feedback—to test our sexual destiny predictions. Taken together, these results increase our confidence that the findings are not an artifact of the particular measures we administered.

Our studies provide evidence for our predicted direction of causality such that the sexual beliefs, and not a third variable, lead to satisfaction. For example, the fact that the daily diary study (Study 3) demonstrated daily effects of sexual growth and destiny beliefs, above and beyond trait levels of these beliefs, provides preliminary evidence that it is the endorsement of the beliefs, rather than an extraneous variable, leading to the outcomes. Likewise in Study 3 we show that sexual growth beliefs at baseline predict increases in relationship quality over the 3-week diary. Most convincingly, Study 6 provides experimental support that when individuals are manipulated to endorse sexual destiny beliefs and are led to feel sexually incompatible, their relationship quality decreases. Taken together, these findings are consistent with our prediction that the sexual beliefs increase/decrease relationship quality.

### Theoretical Contributions and Implications

Our research makes an important contribution to the literature by illustrating that individuals’ beliefs about how sexual satisfaction is attained can contribute to their sexual and relationship quality. It is critical to understand factors, such as sexual growth beliefs, that are associated with higher sexual satisfaction, given abundant evidence that sexual satisfaction is crucial for relationship functioning (e.g., Sprecher, 1994; Yabiku & Gager, 2009; Yeh et al., 2006). Moreover, understanding how different individuals, such as those high in sexual destiny beliefs, respond to areas of sexual incompatibility in their relationship is important, as sexual differences between partners are both common in relationships (e.g., Day et al., 2015; Mark, 2012) and difficult to resolve (Sanford, 2003). In fact, sexual disagreements may be more diagnostic of overall relationship quality than other types of relationship disagreements (Rehman et al., 2011). Hence, it is important to uncover individual characteristics, such as high destiny beliefs, that may make it more challenging for couples to successfully navigate these situations of sexual incompatibility.

The present research is the first to apply the well-established concept of implicit theories (e.g., Burnette et al., 2013; Dweck et al., 1995; Molden & Dweck, 2006) to sexual relationships, and in doing so, makes important contributions to research on both close

relationships and implicit theory. All of our effects remained above and beyond general relationship beliefs, emphasizing the importance of examining implicit beliefs specific to the sexual domain. Further, the daily diary study in this investigation is the first to our knowledge to test whether implicit theories show variability from day to day. Our finding that lay beliefs about sexuality do vary somewhat from day to day opens up exciting future possibilities for implicit theory work to explore whether other lay beliefs vary at the daily level, and compare within-subject variation across domains. For example, people may have firmer, less variable theories about some attributes (e.g., intelligence) than other attributes (e.g., romantic relationships). Our daily findings suggests implicit theory researchers should make greater use of within-subjects designs to capture day-to-day variation, and begin to explore what may be causing natural daily shifts in implicit beliefs. For example, one interesting extension would be to examine whether consuming more romantic media (e.g., *The Bachelor*) on a given day would increase an individual’s level of relationship destiny beliefs, which would complement similar cross-sectional findings (Holmes, 2007). Likewise, our study is the first to our knowledge to demonstrate direct partner effects of implicit theories by employing the Actor Partner Interdependence Model (Kenny, Kashy, & Cook, 2006). That is, we show that one partner’s beliefs about how sexual satisfaction is maintained in relationships is associated with the other partner’s feelings about their sex life and relationship, above and beyond that person’s own implicit beliefs about sexuality. Future work could explore whether more general growth beliefs also directly benefit one’s romantic partner above and beyond that partner’s own beliefs, and how romantic partners’ beliefs may influence each other’s beliefs over time. Lastly, sexual growth believers’ ability to flexibly alter the importance of the sexual domain (Study 6) helps provide a potential concrete explanation for *how* growth believers remain relatively unperturbed by relationship conflict (Knee et al., 2004), in that they may be devaluing relationship domains in which problems occur. This phenomenon could extend to other implicit theories beyond relationships; for example, the finding that high school students with incremental (growth) views of personality respond less negatively to social exclusion relative to entity (destiny) theorists (Yeager et al., 2014) may be in part because they discount the importance of the social domain to their identity. That is, these individuals may be able to maintain a positive global view of their personality by devaluing the importance of the domain in which they were threatened. Future research could address these possibilities. Thus, by finding daily variability, partner effects, and domain discounting for sexual implicit beliefs, we have made a unique methodological contribution to the broader implicit theory literature, which may begin to explore similar phenomenon in other domains.

This research suggests ways in which implicit theories in the sexual domain may function similarly to implicit theories of relationships in that the positive associations between sexual growth beliefs and sexual and relationship satisfaction mirror findings of the benefits of growth beliefs in relationships (e.g., Knee, 1998; Knee et al., 2004). Yet, we also observed how implicit theories in the sexual domain may diverge from broader relationship implicit theories, in that we observed a small positive effect of sexual destiny beliefs on sexual satisfaction, whereas general destiny

beliefs are typically not associated with relationship satisfaction (e.g., Franiuk et al., 2002).

A further difference between our findings regarding sexual implicit theories and other relationship implicit theories is that we found that men and women tended to differ in their mean levels of sexual destiny and sexual growth beliefs, with men being higher in sexual destiny beliefs and women higher in sexual growth beliefs, whereas there do not appear to be gender differences in mean levels of general relationship beliefs (Knee & Petty, 2013). It is possible that women may be attuned to the importance of working on sexual satisfaction more so than men because it typically is not as easy for women to achieve sexual satisfaction. That is, women relative to men tend to experience less frequent orgasms (Richters, Grulich, de Visser, Smith, & Rissel, 2003), have less spontaneous sexual desire (Basson, 2000), and their sexual pleasure is more responsive to the variety of sexual behaviors in which they engage (e.g., Richters, de Visser, Rissel, & Smith, 2006). Additionally, women's sexual enjoyment and orgasm during a sexual encounter are facilitated by specific sexual practices, experience with a particular partner, and relationship commitment (Armstrong, England, & Fogarty, 2012). Taken together, this suggests that women's sexual satisfaction may require more 'work' than men's satisfaction, and hence women may be more likely to endorse sexual growth beliefs. Future research should continue to examine how implicit theories in the sexual domain function similar to, and differently from, other implicit theories.

This research contributes to emerging research (McNulty & Fisher, 2008) that individuals' expectations regarding sexual satisfaction can impact the maintenance of romantic relationships over time. Sexual growth believers expect that they may need to work to achieve sexual satisfaction, and hence are less distressed when they encounter situations, such as sexual disagreements or the transition to parenthood, in which work may be required for satisfaction. Conversely, sexual destiny believers expect that sexual satisfaction will just happen with a compatible partner, and consequently experience declines in relationship quality if incompatibilities arise. Additionally, aligned with other work (e.g., Day et al., 2015; de Jong & Reis, 2015; Muise et al., 2013), this research provides evidence for the utility of applying social psychological theories specifically to the domain of sexuality. By employing the well-researched topic of implicit theories to the sexual domain, we were able to generate and provide evidence for clear hypotheses grounded in theory.

### Limitations and Future Directions

Although many of our findings were consistent across studies, not all predicted effects replicated across studies. In Study 4, due to lower statistical power, we observed nonsignificant trends that one's own beliefs affected a partner's overall satisfaction, and that sexual growth beliefs are associated with higher satisfaction. As previously discussed, the small effect sizes observed in Study 4 could have been due to having a sample of relatively young participants in shorter, first time sexual relationships, which is supported by the fact that predicted effects emerged much more strongly in Study 5, which included couples in considerably longer relationships. Future work would benefit from examining couples longitudinally, to better understand at which stages sexual destiny and sexual growth beliefs begin to have a greater influence on both one's own and one's partner's outcomes.

Examining couples over a longer time span would enable to see how these sexual beliefs may change over time, and how beliefs may influence the longevity of the relationship. For example, can an individual's sexual growth beliefs at the outset of a relationship predict the maintenance of satisfaction several years later? Likewise, a long-term longitudinal study would enable us to gain further insight into how these beliefs may help couples navigate important relationship transitions such as the transition to marriage and the transition to parenthood.

An additional limitation is that with the measures included in the current studies we cannot provide definitive evidence that sexual destiny believers only respond to signs that their partner is not a good match for them in the sexual domain exclusively, and not to incompatibilities with their partner in any domain. However, we did perform an initial test of this possibility in Study 5, in which we found some evidence for the specificity of these effects to the sexual domain: sexual destiny beliefs did not interact with perceptions that a partner was an ideal relationship partner to predict relationship quality. Additionally, in Study 6 we found that individuals primed with sexual destiny beliefs did not respond to financial compatibility feedback for certain outcomes; for example, individuals induced to hold sexual destiny beliefs were no more/less willing to make sexual changes for their partner if they found out they were financially compatible, relative to incompatible (whereas they were more willing if they found out they were sexually compatible vs. incompatible).

Our current data provide initial insights into what is driving our effects, but leave questions open for future work. For example, it is possible that our observed partner effects (Studies 4 and 5) arise because individuals accurately perceive their romantic partner's levels of sexual destiny and sexual growth beliefs. Or, these partner effects may be largely driven by different behaviors sexual growth and sexual destiny beliefs lead to that are accounting for differences in relational outcomes. Given that sexual growth believers assert that sexual satisfaction takes effort and work to maintain, they may be engaging in a host of behaviors that facilitate higher sexual and relationship satisfaction, even in the face of difficulties; that is, they may be motivated and willing to actually put in work to achieve satisfaction. This is consistent with the evidence found in Study 6 that sexual growth believers are willing to make sexual changes for their partner regardless of compatibility, which should in turn render themselves and their partner more satisfied (Burke & Young, 2012; Muise & Impett, 2015), and is consistent with additional analyses exploring potential mediators (see supplemental materials p. 1, and Figures S1 and S2). This suggests that people higher in sexual growth beliefs are more willing to meet their partner's sexual needs, but the specific behaviors that they enact are not yet clear and remain an important direction for future research. For example, perhaps by believing sexual satisfaction requires effort, those high in sexual growth beliefs are more willing to communicate with their partner about their sexual needs, promoting satisfaction (MacNeil & Byers, 2009). Or, perhaps those higher in sexual growth beliefs are more willing to attend couples therapy to try to work through sexual differences, which in turn can strengthen their sexual and overall relationship (e.g., O'Leary, & Arias, 1983).

Another possible explanation for our effects we are unable to test in the current data is the role of attributions. For example, it is possible that sexual growth believers are able to stay satisfied with their relationships even when encountering sexual incompatibili-

ties because they make less distress-maintaining attributions for sexual difficulties (e.g., attribute difficulties to external forces vs. blaming their partner; Jodoin et al., 2011). This would be in line with studies in the implicit theory literature suggesting that entity/destiny theorists are more likely to make helpless attributions when encountering threats (attributing failure to internal, uncontrollable causes), relative to incremental/growth theorists who make more mastery-oriented attributions (attributing failure to a lack of effort), and therefore are more confident they can work to overcome the challenge (e.g., Blackwell et al., 2007; Robins & Pals, 2002). Continuing to uncover what sexual destiny and sexual growth believers do differently in the bedroom, particularly the role of attributions, is an important avenue for future research.

As the present research was focused on the repercussions of holding sexual destiny beliefs and the advantages of holding sexual growth beliefs, we did not address the factors that may lead one to endorse sexual destiny and sexual growth beliefs in the first place. As mentioned, the media may be one force that shapes ideas about romantic destiny (Holmes, 2007). Further, some research regarding general relationship destiny and growth beliefs suggests that one's motivation to support others out of concern for others' well-being, can subsequently shape growth beliefs (Canevello & Crocker, 2011), and that stressful relationship events might alter destiny beliefs (Knee, 1998). These studies provide hints at what might contribute to an individual's sexual destiny and sexual growth beliefs, which is an interesting avenue for future research.

## Conclusions

Maintaining sexual satisfaction in long-term romantic relationships is a challenging endeavor for many couples. The current investigation provides the first evidence that individuals' lay beliefs about how sexual satisfaction can be maintained play an important role in shaping their sexual and relationship satisfaction. Those who believe sexual satisfaction takes effort and work to maintain are ultimately more satisfied, whereas those who think satisfaction is tied to partner compatibility experience more volatile relationship quality.

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(Appendix follows)

## Appendix

### Final Sexual Destiny and Sexual Growth Beliefs Measure

Please indicate your agreement/disagreement to the following items:

1	2	3	4	5	6	7
Strongly disagree						Strongly agree
<p>1. Experiencing sexual problems is a sure sign that a couple is not sexually compatible.</p> <p><b>2. Sexual satisfaction often fluctuates over the course of a relationship.</b></p> <p><b>3. A satisfying sexual relationship evolves through hard work and resolution of incompatibilities.</b></p> <p>4. Couples who experience sexual incompatibilities in their relationship will inevitably break up.</p> <p><b>5. In order to maintain a good sexual relationship, a couple needs to exert time and energy.</b></p> <p>6. An unsatisfying sex life suggests that the relationship was never meant to be.</p> <p><b>7. Successful sexual relationships require regular maintenance.</b></p> <p><b>8. Without acknowledging romantic partners' different sexual interests, a sexual relationship cannot improve.</b></p> <p><b>9. A satisfying sexual relationship is partly a matter of learning to resolve sexual differences with a partner.</b></p> <p><b>10. Making compromises for a partner is part of a good sexual relationship.</b></p> <p>11. If a couple is truly in love, partners will naturally have high sexual chemistry.</p> <p><b>12. Working through sexual problems is a sign that a couple has a strong bond.</b></p> <p>13. Struggles in a sexual relationship are a sure sign that the relationship will fail.</p> <p>14. A couple is either destined to have a satisfying sex life or they are not.</p> <p>15. It is clear right from the start how satisfying a couple's sex life will be over the course of their relationship.</p> <p><b>16. In a relationship, maintaining a satisfying sex life requires effort.</b></p> <p><b>17. Sexual desire is likely to ebb and flow (i.e., change) over the course of a relationship.</b></p> <p>18. A passionate sex life is a sign that two partners are meant to be.</p> <p><b>19. Communicating about sexual issues can bring partners closer together.</b></p> <p>20. Troubles in a sexual relationship signify a poor match between partners.</p> <p>21. If sexual satisfaction declines over the course of a relationship, it suggests that a couple is not a good match.</p> <p>22. If sexual partners are meant to be together, sex will be easy and wonderful.</p> <p><b>23. Acknowledging each other's differing sexual interests is important for a couple to enhance their sex life.</b></p> <p><b>24. Even satisfied couples will experience sexual challenges at times.</b></p>						

*Note.* Bolded items represent sexual growth items. No items are reverse-scored.

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