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Implicit Theories of Relationships and Close Relationship Violence: Does Believing Your
Relationship Can Grow Relate to Lower Perpetration of Violence?

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Abstract

People differ in what they think makes for a successful relationship, but it is unclear how these beliefs relate to the perpetration of violence. Four studies (N = 2,591) examined the relationship between growth beliefs and the perpetration of violence in close relationships. Specifically, the current work tested the hypothesis that growth beliefs mitigate against close relationship violence, possibly due to increased satisfaction with sacrificing one's own self-interest for the betterment of the relationship. Studies 1 and 2 provided cross-sectional and longitudinal evidence that growth beliefs predicted less perpetration of close relationship violence. Studies 3 and 4 showed that the relationship between growth beliefs and lower perpetration of violence was mediated by satisfaction with sacrifice within one's relationship. All effects of growth beliefs remained significant after controlling for destiny beliefs. Discussion centers on the importance of implicit theories of relationships for understanding the perpetration of violence in close relationships.

Implicit Theories of Relationships and Close Relationship Violence: Does Believing Your Relationship Can Grow Relate to Lower Perpetration of Violence?

What are the crucial ingredients of a successful relationship? This simple question has perplexed social scientists for years. In response, a litany of personality, social, and biological factors have been identified and linked to positive relationship outcomes. Understanding people's beliefs about relationships has proven useful in understanding relationship dynamics. In particular, people's *implicit theories* regarding the nature of relationships—that relationships involve growth and change, or that people are destined for each other or not—are linked to a variety of processes related to relationship well-being (Burnette et al., in press; Finkel, Burnette, & Scissors, 2007; Franiuk, Pomerantz, & Cohen, 2004; Knee, 1998; Knee & Canevello, 2006; Knee, Nanayakkara, Vietor, Neighbors, & Patrick, 2001; Knee, Patrick, & Lonsbary, 2003; Knee, Patrick, Vietor, & Neighbors, 2004). What remains relatively unexplored, however, is how implicit theories of relationships relate to the perpetration of violence in close relationships. Even less research has investigated *why* certain beliefs about relationships may predict close relationship violence.

The current investigation seeks to fill these gaps in the literature by examining the relationship between implicit theories of relationships and the perpetration of violence in close relationships. The potential for conflict is present in most relationships, which may result in aggressive behavior. Yet, perceiving that conflicts, disagreements, or other relationship tussles signal opportunities for growth and change in a relationship may diminish the likelihood that people will behave aggressively toward their partner.

Therefore, the first purpose of the current investigation was to test the hypothesis that growth beliefs predict lower amounts of close relationship violence perpetration.

Why might growth beliefs relate to lower levels of close relationship violence perpetration? Because a core feature of growth beliefs is that resolving conflict promotes successful and loving relationships, people who have strong (vs. weak) growth beliefs may gain satisfaction from their ability to sacrifice their own interests in the service of resolving conflict in their relationships.

Hence, growth beliefs may increase people's satisfaction with sacrificing their own interests and focusing instead on their partner's needs, which may in turn predict lower levels of aggression toward their partner. Therefore, our second hypothesis was that the relationship between growth beliefs and lower close relationship violence perpetration would be mediated by satisfaction with sacrificing one's self-interest in a close relationship. Our full conceptual model is depicted in Figure 1.

To test our hypotheses, we conducted four studies. In each study, participants reported their implicit theories of relationships and perpetration of violence within a close relationship. We predicted that growth beliefs would relate to lower levels of close relationship violence perpetration in both cross-sectional and longitudinal designs. In Studies 3 and 4, participants also reported how much satisfaction they derived from sacrificing their self-interest to focus on their partner's needs. We predicted that satisfaction with sacrifice would mediate the relationship between growth beliefs and the perpetration of violence within a close relationship.

Implicit Theories of Relationships

People bring many beliefs to their close relationships. They may have beliefs related to politics, religion, sexual behavior, or the importance of money, to name just a few. People can also have different beliefs about the same topic, such as intelligence or personality. These implicit theories involve beliefs that various characteristics are considered immutable or changeable (Dweck, 2006; Molden & Dweck, 2006). Implicit theories of relationships are beliefs that individuals have about what makes a successful relationship. These beliefs influence individuals and ultimately their relationships by impacting their attributions, motivations, goals, and behavior (Knee et al., 2003). Knee (1998) proposes that implicit theories of relationships involve two independent beliefs, relationship growth and relationship destiny.

Growth belief is defined as “the belief that relationship challenges can be overcome” (Knee et al., 2003, p. 41). This belief is accompanied by the view that partners and relationships can change over time (Hendrick & Hendrick, 1986) and that obstacles help relationships grow and develop. Destiny belief is defined as “the belief that potential relationship partners are either compatible or they are not” (Knee et al., 2003, p. 41). This belief is accompanied by the view that individuals and relationships are unlikely to change much over time (Eidelson & Epstein, 1982). Franiuk, Cohen, and Pomerantz (2002) have identified similar implicit theories of relationships: work-it-out theory and soulmate theory. Individuals holding a work-it-out theory believe that the most important aspect of developing a satisfying relationship is the effort that that partners put in to that relationship. Those holding a soulmate theory believe that the most important aspect of developing a satisfying relationship is finding the right partner.

Destiny and growth beliefs are both conceptually and statistically independent constructs (Knee et al., 2003, 2004). Knee et al. (2001) found that growth beliefs hold special importance when dealing with negative relationship experiences. In particular, growth beliefs have been studied in relation to conflict in romantic relationships (Knee et al., 2004). Knee (1998) found that growth beliefs are related to the coping strategies that individuals use in response to relationship stressors such as arguments. Individuals scoring higher in growth beliefs show lower denial and behavioral disengagement in response to relationship stressors. Growth-oriented people also use more relationship-maintenance strategies such as active coping, planning ways in which to resolve the problem, and positive reinterpretation of the situation. Knee et al. (2004) explain that those high in growth beliefs are likely to view relationship conflict as normative, helping to protect relationships from the potentially negative effects of conflict. Rather than seeing conflict as something that is detrimental to the relationship, those high in growth beliefs view it as an opportunity to increase understanding between partners and to improve the relationship, ultimately leading them to a greater sense of relationship commitment after conflict resolution.

Although the relationship between growth beliefs and an increased likelihood of attempting to resolve conflict has been established, prior research has not investigated the specific ways in which individuals attempt to resolve relationship conflict, nor has it examined whether growth beliefs are related to less perpetration of violence within close relationships. Because verbal disagreements and high conflict in relationships are both correlated with the perpetration of violence in these relationships (Stets, 1990; Straus, Gelles, & Steinmetz, 1980), we propose that growth beliefs may also relate to lower

levels of close relationship violence. Just as growth beliefs predict effort exerted in improving relationships (Knee, 1998), growth beliefs may relate to engaging in fewer behaviors that can undermine relationship success, such as close relationship violence.

Whereas we predict that growth beliefs relate to less close relationship violence, we did not hold strong predictions regarding destiny beliefs. Growth and destiny beliefs are two separate constructs that can be studied independently of one another (Knee et al., 2003). By definition of the concept, growth beliefs relate directly to conflict in close relationships in a number of ways. Individuals higher in growth belief view relationship problems and disagreements as opportunities for increased understanding of one's partner and relationship improvement (Knee et al., 2004). Knee and colleagues (2004) found that growth belief buffers the negative impact that conflict has on relationship quality by way of the meaning that individuals assign to the conflict. Those high in growth belief are more likely to view conflict as an opportunity for increased understanding within the relationship, rather than something that cannot be overcome. As close relationship violence is a more extreme form of conflict, it is anticipated that close relationship violence will also relate to growth beliefs.

Destiny belief, on the other hand, is not inherently concerned with improving relationships or beliefs about resolving problems within those relationships (Knee et al., 2003). Destiny belief involves considering whether or not the relationship partner is destined to be a compatible partner. It has less to do with the work or conflict that is expected to take place within that relationship. While some research has also investigated the potential link between destiny belief and responses to transgressions (Finkel et al., 2007), theoretical grounding in the connection between the two variables

is lacking and results appear to be inconsistent (Knee et al., 2004). Therefore, it was not expected that destiny beliefs would be related to close relationship violence.

The next section offers an operational definition of close relationship violence and situates these predictions regarding growth beliefs and close relationship violence within an existing framework for aggression.

Close Relationship Violence

Close relationship violence refers to intentionally causing physical harm to a close relationship partner who is motivated to avoid the harm (Baron & Richardson, 1994). Research on intimate partner violence indicates that it occurs at alarmingly high rates, with over one-fifth of couples reporting at least one episode of violence over the course of a year (Schafer, Caetano, & Clark, 1998). Less research has been conducted on the occurrence of violence within friendships and acquaintances. Graham, Wells, and Jelley (2002) found that among the approximately 10% of people involved in physically aggressive incidents over the course of a year, about 19% of this violence occurs within intimate relationships and about 34% of it occurs among friends, acquaintances, and coworkers.

The consequences of both forms of relational violence range from minor physical harm to death and are also typically accompanied by psychological damage (Graham et al., 2002; Plichta, 2004). The high rates of intimate partner violence and violence among friends, paired with a gamut of potential consequences, highlights the importance of developing a greater understanding of the phenomenon of close relationship violence and the reasons why it occurs.

The hypothesis that growth beliefs may mitigate against close relationship violence meshes well with the General Aggression Model (GAM; Anderson & Bushman, 2002; DeWall, Anderson, & Bushman, 2011). According to the GAM, knowledge structures play a key role in predicting aggression. Knowledge structures refer to mental structures that influence how people perceive, understand, and interact with the social world. Knowledge structures develop out of experience, which can give rise to beliefs that people bring with them into situations. If an individual has a long term goal of maintaining a relationship and working through struggles in order to achieve this goal (stemming from growth beliefs) and if they believe that conflict can be resolved without violent means, incentives to perform aggressive behaviors may be decreased. If people believe that successful relationships are marked by continuous change and growth through effectively resolving conflicts and disagreements, then they may experience satisfaction with sacrificing their self-interest in order to focus on their partner's needs. By focusing on their partner's needs, people who have relatively strong growth beliefs may be less likely than others to behave aggressively toward close relationship partners.

Thus, there is theoretical and empirical precedent for predicting that growth beliefs may relate to lower levels of violence in close relationships. But it remains unclear why growth beliefs might mitigate against close relationship violence. The next section discusses one potential mediator of the relationship between growth beliefs and lower perpetration of violence in close relationships, namely the tendency for people to experience satisfaction from sacrificing their self-interest for the betterment of their relationship.

Why Might Growth Beliefs Relate to Lower Perpetration of Violence in Close Relationships?

Growth beliefs may relate to lower close relationship violence perpetration for several reasons that are associated with satisfaction with sacrifice. Sacrifice may involve passive (i.e., giving up desired behaviors), active (i.e., taking part in undesirable behaviors), or both passive and active acts. Prior research has indicated that there are a number of relational benefits to sacrificing in relationships, including increased relationship satisfaction and increased persistence over time (Van Lange, Agnew, Harinck, & Steemers, 1997; Van Lange, Rusbult, et al., 1997; Wieselquist, Rusbult, Foster, & Agnew, 1999).

First, individuals who strongly subscribe to growth beliefs may gain satisfaction from sacrificing their self-interest in order to focus on their partner's needs because doing so can aid in effective conflict resolution. Sacrificing one's self-interest plays a key role in responding with accommodation instead of retaliation in close relationships (e.g., Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991). For individuals who strongly subscribe to growth beliefs, effectively resolving partner conflict offers them opportunities for change and growth. Therefore, we predict that growth beliefs will relate to experiencing satisfaction from sacrificing one's self-interest, which may help explain why growth beliefs are related to lower levels of close relationship violence perpetration.

Second, feeling comfortable sacrificing one's self-interest in a close relationship is associated with factors that enhance relationship stability and diminish the perpetration of violence. For example, individuals who are highly committed to their relationship are more likely to sacrifice their self interest in that relationship (Van Lange

et al., 1997) and less likely to perpetrate close relationship violence (Gaertner & Foshee, 1999; Slotter, Finkel, DeWall, Pond, Lambert, Bodenhausen, & Fincham, 2012). Likewise, satisfaction with sacrifice is related to having a stronger sense of couple identity (Lambert, Fincham, & Stanley, in press). Thus, believing that one can work toward the long-term well-being of a relationship may relate to individuals experiencing greater satisfaction with making sacrifices for their relationship partners.

Finally, people who derive greater satisfaction in sacrificing for their partners may perpetrate less violence within those relationships because individuals would be less inclined to hurt someone they have personally invested in through sacrificing. Simply restraining one's aggressive impulses towards violence for the good of their partner may be a sacrifice.

Accordingly, Neff and Harter (2002) found that individuals who normally resolve conflict by sacrificing their own needs for those of their partner experience greater personal fulfillment, and therefore greater personal benefits (e.g., personal fulfillment), and greater interpersonal benefits (e.g., maintaining or strengthening the relationship). Alternatively, those who sacrifice their own needs in an attempt to avoid conflict within their relationship tend to experience greater resentment, and therefore more negative personal consequences (e.g., unhappiness) and more negative interpersonal consequences (e.g., weakening or harming the relationship). Therefore, an individual who is high in growth beliefs may be less likely to avoid conflict, more likely to be satisfied with sacrificing for the sake of their partner and their relationship, less likely to be resentful towards their partner, and less likely to perform aggressive acts towards their partner.

Overview of Studies

Four studies examined whether growth beliefs mitigate against close relationship violence and why this association may occur. Study 1 examined the relationship between growth beliefs and physical assault, controlling for sex and destiny beliefs. Study 2 investigated whether initial growth beliefs predict physical assault 12 weeks later, controlling for sex and initial levels of destiny beliefs, relationship satisfaction, and physical assault. Study 3 examined whether satisfaction with sacrifice would mediate the relationship between growth beliefs and physical assault, this time measured by the number of pins with which a person would stab a doll representing his or her partner. Study 4 examined whether satisfaction with sacrifice would mediate the relationship between initial growth beliefs and physical assault six weeks later, controlling for sex and initial levels of destiny beliefs, relationship satisfaction, and physical assault.

Study 1: Concurrent Association Between Growth Beliefs and Physical Assault

We first examined whether growth beliefs were associated with perpetration of physical assault. Participants reported their levels of growth beliefs, destiny beliefs, and physical assault. We hypothesized that greater growth beliefs would relate to less physical assault perpetrated against an individual's current romantic partner or the person in their most important interpersonal relationship, even after controlling for sex and destiny beliefs.

Method

Participants

Eight hundred sixty-two undergraduate students (209 male, 653 female) participated in this study in order to gain course credit. The ages of participants ranged

from 18 to 54, with a median age of 19. Participants answered the questions in regards to their romantic partner ($n = 442$) or in regards to their most important interpersonal relationship who was not a romantic partner ($n = 420$). Nonromantic relationship types may have included a roommate, friend, or family member and may have included someone of either the same or opposite sex. Results did not differ between people who reported on their romantic partner or a non-romantic close relationship partner.

Therefore, responses were collapsed across type of relationship.

Measures

Growth and destiny beliefs. Growth and destiny beliefs were measured using a shortened, eight-item version of the Implicit Theories of Relationships Scale (Knee et al., 2003). Four items asked about beliefs regarding the ways in which relationships develop over time and how hard work, challenges, and conflict contribute to the success of the relationship (e.g., “Challenges and obstacles in a relationship can make love even stronger”). The items were summed to create an index of growth beliefs ($\alpha = .81$). Four items asked about beliefs regarding the ways in which compatibility and signs from the start of the relationship may be indicative of the success or failure of that relationship (e.g., “A successful relationship is mostly a matter of finding a compatible partner right from the start”). The items were summed to create an index of destiny beliefs ($\alpha = .68$). The correlation between growth beliefs and destiny beliefs was $r(860) = .28, p < .001$.

Physical assault. Aggression was measured using the five-item physical assault subscale derived from the Revised Conflict Tactics Scales (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996). These items measured physical assault perpetrated against the participant’s romantic partner or most important interpersonal relationship

(e.g., “I slapped my partner” and “I threw something at my partner that could hurt”). The items were summed to create an index of physical assault ($\alpha = .79$).

Procedure

Participants completed all portions of the study over the Internet. After giving informed consent, participants completed a demographic questionnaire, the growth and destiny beliefs scale, and the physical assault items from the CTS2. A debriefing followed.

Results and Discussion

As expected, greater growth beliefs were related to less physical assault perpetrated in close interpersonal relationships, $\beta = -0.13$, $t(861) = -3.70$, $p < .001$. Destiny beliefs were also related to close relationship violence, $\beta = -0.09$, $t(861) = -2.71$, $p = .01$. Growth beliefs remained a significant predictor of physical assault perpetrated in close interpersonal relationships after controlling for sex and destiny beliefs, $\beta = -0.10$, $t(859) = -2.93$, $p < .01$.¹ However, destiny beliefs did not remain a significant predictor of physical assault perpetrated in close interpersonal relationships after controlling for sex and growth beliefs, $\beta = -0.06$, $t(859) = -1.64$, $p = .10$.²

Study 1 offered initial evidence that growth beliefs were associated with lower close relationship violence. Despite the strength of these results, Study 1 was limited

¹ We tested for a destiny/growth interaction and found such an interaction in only one of the four studies. Given this inconsistency, we did not report the results here. We also tested for and found no consistent interactions with participant gender. We also tested for interactions with relationship satisfaction in all four studies and found no consistent pattern of results. Thus, we do not report these analyses in the text.

² Given the non-normal distribution characterizing our dependent measure, we also ran the analyses for all four studies using Poisson regression with robust standard errors. In all four studies, the effect of growth beliefs on close partner violence remained significant. We retained the standard regression analyses as our primary analyses for the sake of consistency, because the mediation analyses in Studies 3 and 4 are regression based.

because it only assessed participants' scores at one point in time. To gain information about the stability of this relationship over time, it would be desirable to examine whether growth beliefs can predict lower levels of close relationship violence over time. This limitation was addressed in Study 2 by examining the same variables using a longitudinal design.

Study 2: Temporal Association Between Growth Beliefs and Physical Assault

Having discovered an association between growth beliefs and close relationship violence, we sought to replicate and extend Study 1 in two ways. First, we used a longitudinal design to investigate whether growth beliefs predict changes in physical assault over time. Second, we measured relationship satisfaction to determine whether growth beliefs predict lower levels of close relationship violence over time, even after controlling for how satisfied people are with their relationship. Because relationship satisfaction is associated with lower close relationship violence (e.g., Fonseca et al., 2006), it is desirable to demonstrate that growth beliefs continue to predict lower close relationship violence after controlling for shared variance with a factor that is associated with lower levels of close relationship violence.

In Study 2, participants reported their levels of growth beliefs, destiny beliefs, physical assault, and relationship satisfaction. Twelve weeks later, they reported their levels of physical assault again. We hypothesized that greater growth beliefs at Time 1 would relate to less physical assault perpetrated against an individual's current romantic partner or the person in their most important interpersonal relationship 12 weeks later, even after controlling for sex and initial levels of destiny beliefs, relationship satisfaction, and physical assault.

Method

Participants

Nine hundred eighty-two undergraduate students began the study in order to gain course credit. Of these, 905 (183 male, 722 female) completed all measures at both time points. The ages of participants ranged from 17 to 40, with a median age of 19. Participants answered the questions in regards to their romantic partner ($n = 488$) or in regards to their most important interpersonal relationship ($n = 417$). Nonromantic relationship types may have included a roommate, friend, or family member and may have included someone of either the same or opposite sex. As in Study 1, results were not moderated by the type of relationship on which participants reported. Therefore, responses were collapsed across type of relationship.

Measures

Growth and destiny beliefs. The same eight-item scale was used to measure growth ($\alpha = .81$) and destiny ($\alpha = .68$) beliefs as was used in Study 1. The correlation between growth beliefs and destiny beliefs was $r(889) = .11, p < .01$.

Physical assault. The same five-item scale was used to measure perpetration of physical assault as was used in Study 1. The coefficient alpha was .76 at Time 1 and .90 at Time 2.

Relationship satisfaction. Relationship satisfaction was assessed using Funk and Rogge's (2007) four-item measure of relationship satisfaction. These items measured satisfaction with the participant's romantic partner or most important interpersonal relationship (e.g., "How rewarding is your relationship with your partner?")

and “I have a warm and comfortable relationship with my partner”). The items were summed to create an index of relationship satisfaction ($\alpha = .93$).

Procedure

Participants completed all portions of the study over the Internet. After giving informed consent, participants completed a demographic questionnaire, the growth and destiny beliefs scale, the relationship satisfaction scale, and the physical assault items from the CTS2. Twelve weeks later, participants completed the physical assault items from the CTS2 again. Finally, participants received a debriefing.

Results and Discussion

To test the hypothesis that growth beliefs are associated with lower levels of close relationship violence, we conducted two sets of analyses. First, we conducted a cross-sectional analysis predicting initial close relationship violence from growth beliefs, controlling for sex, destiny beliefs, and relationship satisfaction. Second, we conducted a longitudinal analysis in which we predicted Time 2 close relationship violence from growth beliefs, controlling for sex, destiny beliefs, relationship satisfaction, and Time 1 relationship violence.

As expected, growth beliefs were associated with lower initial levels of physical assault, $\beta = -0.11$, $t(984) = -3.60$, $p < .001$. Destiny beliefs were unrelated to initial levels of physical assault, $\beta = -0.03$, $t(982) = -1.04$, $p = .30$. Growth beliefs continued to predict lower initial levels of relationship violence after controlling for sex, destiny beliefs, and relationship satisfaction, $\beta = -0.11$, $t(977) = -3.29$, $p < .05$. These results replicate and extend the cross-sectional results of Study 1 by showing that growth beliefs are

associated with lower aggression even after controlling for the association between relationship satisfaction and aggression.

Next, we regressed Time 2 relationship violence on our measures of growth beliefs, sex, destiny beliefs, relationship satisfaction, and initial levels of relationship violence. As expected, greater growth beliefs correlated negatively with physical assault at Time 2, $\beta = -0.18$, $t(903) = -5.54$, $p < .001$. Destiny beliefs, in contrast, did not predict later levels of physical assault, $\beta = -0.05$, $t(903) = -1.41$, $p = .16$. Growth beliefs at Time 1 remained a significant predictor of physical assault perpetrated in close interpersonal relationships at Time 2 after controlling for sex, destiny beliefs, and initial levels of relationship satisfaction and physical assault, $\beta = -0.11$, $t(899) = -3.29$, $p < .001$.

Study 2 provided additional evidence that growth beliefs are associated with lower levels of close relationship violence. The more participants believed that successful relationships are grown and cultivated, the less they behaved aggressively toward a close relationship partner initially and twelve weeks later. In addition, the relationship between growth beliefs and lower close relationship violence remained significant after controlling for relationship satisfaction, which contradicts the possibility that the Study 1 findings were due to people with high (vs. low) growth beliefs experiencing greater relationship satisfaction.

Although Studies 1 and 2 showed that growth beliefs reliably predict lower levels of close relationship violence, those studies did not offer an explanation regarding *why* this associated occurs. To test the hypothesis that satisfaction with sacrificing self-interest for the betterment of the relationship mediates the relationship between growth beliefs and lower close relationship violence, we conducted two additional studies.

Study 3 tested this mediational hypothesis cross-sectionally, whereas Study 4 tested it longitudinally.

Study 3: Satisfaction with Sacrifice Mediates the Relationship Between Growth Beliefs and Lower Close Relationship Violence

Having shown that growth belief is reliably associated with lower levels of close relationship violence, we investigated what might account for this association. We propose that people who strongly (vs. weakly) endorse growth beliefs experience satisfaction from sacrificing their self-interest for the betterment of their relationship, which may mediate the relationship between growth beliefs and lower close relationship violence. In Study 3, participants reported their growth beliefs, destiny beliefs, relationship satisfaction, satisfaction with sacrifice, and completed a measure of their aggressive inclinations toward a close friend. We hypothesized that growth beliefs would predict lower aggressive inclinations, even after controlling for sex, destiny beliefs, and relationship satisfaction. We also predicted that satisfaction with sacrifice would mediate the relationship between growth beliefs and lower aggressive inclinations.

Method

Participants

One hundred sixty-four undergraduate students (48 male, 116 female) participated in this study in order to gain course credit. The ages of participants ranged from 17 to 28, with a median age of 19. Participants answered the questions in regards to their close friend, which may have included someone of either the same or opposite

sex. Due to the broader goal of this study, no participants reported on their romantic partner.

Measures

Growth and destiny beliefs. The same four-item subscale was used to measure growth ($\alpha = .74$) and destiny ($\alpha = .88$) beliefs as was used in Studies 1 and 2. The correlation between growth beliefs and destiny beliefs was $r(163) = .50, p < .001$.

Aggressive inclinations toward a close friend. Participants completed a task in which they could inflict physical harm on a doll that represented their close friend by stabbing it with pins. Specifically, participants were informed that they could stab a doll that represented their partner in order to release any negative energy that they experienced during the study, putting 1 to 51 pins in it ($M = 3.24, SD = 6.46$). Research on magical thinking and the law of similarity has that shown people, regardless of their level of education, transfer characteristics of a person onto an object representing that person (Rozin, Millman, & Nemeroff, 1986). For example, people have difficulty throwing darts through representations of likable or defenseless people because of a latent superstitious belief that it could in some way harm the person (King, Burton, Hicks, & Drigotas, 2007; Rozin et al., 1986). In addition, prior work has established the validity of the use of voodoo dolls as proxies for harmful or aggressive behavior in laboratory settings (Pronin, Wegner, McCarthy, & Rodriguez, 2006). Moreover, in an independent sample ($N = 82$), the voodoo doll task demonstrated a moderate positive association with scores on the well-validated Proximal Antecedents to Violent Episodes scale (Babcock, Costa, Green, & Eckhardt, 2004), $r = .28, p = .01$.

Relationship satisfaction. Relationship satisfaction was assessed using the 8-item relationship satisfaction subscale from the Investment Model Scale (Rusbult, Martz, & Agnew, 1998) measure of relationship satisfaction with optimized psychometric properties. These items measured satisfaction with the participant's close friend (e.g., "In general how satisfied are you with your relationship?"). The items were summed to create an index of relationship satisfaction ($\alpha = .82$).

Satisfaction with sacrifice. Satisfaction with sacrifice was measured using a six-item scale developed by Stanley, Whitton, Sadberry, Clements, and Markman (2006). These items measured satisfaction with sacrifices performed within the relationship with the participant's close friend (e.g., "It can be personally fulfilling to give up something for my close friend"; $\alpha = .84$).

Procedure

As in Studies 1 and 2, participants completed all portions of Study 3 over the Internet. Participants first gave informed consent and then completed a demographic questionnaire, the growth and destiny beliefs scale, the relationship satisfaction scale, the satisfaction with sacrifice scale, and the voodoo doll task. A debriefing followed.

Results and Discussion

Consistent with our prior studies, growth beliefs were associated with lower aggressive inclinations toward a close relationship partner. Growth beliefs predicted a lower number of pins put in the doll that represented their close friend $B = -.31$, $t(163) = -4.23$, $p < .01$. In contrast, destiny beliefs bore no relation to the number of pins inserted in the doll, $B = -.07$, $t(163) = -.86$, $p > .05$. The relationship between growth beliefs and lower aggressive inclinations remained significant after controlling for sex, destiny

beliefs, and relationship satisfaction, $B = -0.20$, $t(160) = -2.39$, $p < .05$. Thus, growth beliefs were robustly associated with lower levels of aggressive inclinations against a close friend, as indicated by stabbing a voodoo doll that represented their close friend with fewer pins.

Mediation by Satisfaction with Sacrifice

Next, we tested the hypothesis that satisfaction with sacrifice mediates the relationship between growth beliefs and lower aggressive inclinations toward a close friend (controlling for sex, destiny beliefs, and relationship satisfaction). As expected, growth beliefs predicted more satisfaction with sacrifice, $B = 0.23$, $t(161) = 3.73$, $p < .01$. In addition, satisfaction with sacrifice predicted stabbing the voodoo doll with fewer pins on its own, $B = -0.21$, $t(161) = -2.27$, $p < .05$, and marginally so after controlling for growth beliefs, $B = -0.17$, $t(160) = -1.79$, $p = .08$. When we added our proposed mediator of satisfaction with sacrifice to the original model, the magnitude of the association between growth beliefs and aggression was reduced, controlling for sex, destiny beliefs, and relationship satisfaction, $B = -0.11$, $t(160) = -1.38$, $p = .17$ (see Figure 1).

To test whether satisfaction with sacrifice mediated the relationship between growth beliefs and aggression, we used the bootstrapping method outlined by Preacher and Hayes (2008). As anticipated, the indirect path through satisfaction with sacrifice was statistically significant, as indicated by finding that the 95% Confidence Interval (bias corrected) for the indirect path, through these mediators, did not include zero (-2.07 to -0.05). Thus, satisfaction with sacrifice significantly mediated the relationship

between growth beliefs and aggression, even when controlling for sex, destiny beliefs, and relationship satisfaction.³

Study 3 provided initial support for our mediational hypothesis that the relationship between growth beliefs and lower aggressive intentions is mediated by satisfaction with sacrifice. To determine the reliability of satisfaction with sacrifice as a mediator, we conducted Study 4.

Study 4: Mediation by Satisfaction with Sacrifice Over Time

Study 4 sought to replicate and extend the mediational results of Study 3 in two ways. First, Study 4 participants reported their actual physical aggression against a close partner instead of their aggressive intentions against their partner. Second, Study 4 used a longitudinal design to examine whether satisfaction with sacrifice mediates the relationship between growth beliefs and lower close relationship violence over time. We predicted that growth beliefs would be associated with experiencing greater satisfaction with sacrificing one's interests for the betterment of one's relationship, which would in turn predict lower levels of close relationship violence over time.

Method

Participants

Five hundred eighty-three undergraduate students (123 male, 460 female) participated in this study in order to gain course credit. The ages of participants ranged from 16 to 54, with a median age of 19. Participants answered the questions in regards to their romantic partner ($n = 339$) or in regards to their most important interpersonal

³ We also tested the reverse model with aggression as the mediator and satisfaction with sacrifice as the dependent variable. This model was also supported empirically; however, our theoretical arguments favor the mediational model we present.

relationship ($n = 243$). Nonromantic relationship types may have included a roommate, friend, or family member and may have included someone of either the same or opposite sex. One participant failed to indicate their target relationship type. As in our previous studies, the results did not differ as a function of relationship type. Therefore, responses were collapsed across both relationship types.

Measures

Growth and destiny beliefs. The same eight-item scale was used to measure growth ($\alpha = .88$) and destiny ($\alpha = .72$) beliefs as was used in Studies 1 and 2. The correlation between growth beliefs and destiny beliefs was $r(641) = .47, p < .001$.

Physical assault. As in Studies 1 and 2, participants completed the physical assault subscale of the CTS2 at each time point. The coefficient alpha was .90 at Time 1 and .92 at Time 2.

Relationship satisfaction. The same four-item scale was used to measure relationship satisfaction at time one as was used in Study 2 ($\alpha = .93$).

Satisfaction with sacrifice. The same six-item scale was used to measure satisfaction with sacrifice as was used in Study 3. The coefficient alpha was .89 at Time 1 and .90 at Time 2.

Procedure

All portions of the study were conducted over the Internet. After giving informed consent, participants completed a demographic questionnaire, the growth and destiny beliefs scale, the relationship satisfaction scale, the satisfaction with sacrifice scale, and the physical assault items from the CTS2. Six weeks later, participants completed the physical assault items again. A defriefing followed.

Results and Discussion

To test the hypothesis that satisfaction with sacrifice mediates the relationship between growth beliefs and lower perpetration of violence in close relationships, we conducted three sets of analyses. First, we sought to replicate the cross-sectional relationship between growth beliefs and lower close relationship violence from Studies 1-3. Second, in an effort to replicate our Study 2 findings, we conducted longitudinal analyses in which we predicted time 2 close relationship violence from growth beliefs and satisfaction with sacrifice, controlling for sex, destiny beliefs, and Time 1 relationship violence. Third, we conducted mediational analyses to determine whether satisfaction with sacrifice significantly mediated the relationship between growth beliefs and lower relationship violence both cross-sectionally and longitudinally.

As expected, growth beliefs were associated with lower initial levels of relationship violence, $\beta = -0.15$, $t(681) = -3.96$, $p < .001$. Growth beliefs also remained significantly associated with lower relationship violence after controlling for sex, destiny beliefs, and relationship satisfaction, $\beta = -0.12$, $t(678) = -2.95$, $p < .01$. Destiny beliefs were unrelated to initial levels of physical assault, $\beta = -0.12$, $t(678) = -.38$, $p = .70$ after controlling for sex, growth beliefs, and relationship satisfaction. These findings replicate Studies 1-3 by showing that growth beliefs are robustly associated with lower close relationship violence.

Next, we regressed Time 2 relationship violence on our measures of growth beliefs, sex, destiny beliefs, relationship satisfaction, and initial levels of relationship violence. As predicted, greater growth beliefs predicted lower levels of relationship violence at Time 2, $\beta = -0.24$, $t(615) = -6.20$, $p < .001$. Growth beliefs remained a

significant predictor of lower close relationship violence over time after controlling for sex, destiny beliefs, relationship satisfaction, and initial levels of relationship violence, $\beta = -0.16$, $t(611) = -4.00$, $p < .001$. In contrast, destiny beliefs did not correlate with later levels of physical assault, $\beta = -0.05$, $t(615) = -1.20$, $p = .23$ after controlling for sex, destiny beliefs, and relationship satisfaction.

Mediation by Satisfaction with Sacrifice

Having replicated our previous findings regarding the relationship between growth beliefs and lower close relationship violence, we next sought to determine whether satisfaction with sacrifice mediated this relationship cross-sectionally and longitudinally. In our cross-sectional analyses, we used growth beliefs to predict initial levels of relationship violence and initial levels of satisfaction with sacrifice as the putative mediator. In our longitudinal analyses, we used growth beliefs to predict later relationship violence and later levels of satisfaction with sacrifice as the putative mediator. We controlled for sex, destiny beliefs, and relationship satisfaction in all analyses. In the longitudinal analyses, we also controlled for initial levels of relationship violence and satisfaction with sacrifice.

Growth beliefs also predicted greater satisfaction with sacrifice over time, $\beta = 0.23$, $t(622) = 5.46$, $p < .001$ (see Figure 2). Time 2 satisfaction with sacrifice predicted Time 2 relationship violence on its own (also controlling for Time 1 sex, destiny beliefs, relationship satisfaction, and Time 1 relationship violence), $\beta = -0.23$, $t(611) = -6.23$, $p < .001$, and after controlling for growth beliefs, $\beta = -0.21$, $t(610) = -5.58$, $p < .001$. When Time 2 satisfaction with sacrifice was entered into the model, the relationship between growth beliefs and Time 2 relationship violence was reduced, $\beta = -0.11$, $t(610) = -2.86$, p

< .01. Bootstrapping analyses confirmed that Time 2 satisfaction with sacrifice significantly mediated the relationship between growth beliefs and Time 2 relationship violence, as indicated by a 95% confidence interval that excluded zero (-0.07 to -0.03).

Study 4 offered converging evidence that growth beliefs are robustly associated with less close relationship violence, which is due in part to greater satisfaction with sacrificing one's interests for the well-being of a relationship. Growth beliefs were associated with lower close relationship violence both concurrently and prospectively, whereas destiny beliefs bore no relation to close relationship violence. In addition, satisfaction with sacrifice reliably mediated the cross-sectional and longitudinal relationships between growth beliefs and lower relationship violence. Thus, believing that a successful relationship is cultivated through change and growth is associated with experiencing satisfaction with sacrificing one's own interests, which in turn predicts lower levels of close relationship violence.

General Discussion

The seeds of close relationship violence can be traced to many factors, including beliefs people have regarding what makes for a rewarding and flourishing relationship. These implicit theories of relationships serve as a pervasive thread that touches many aspects of relationship functioning, including commitment, satisfaction, conflict resolution, forgiveness, and actual relationship dissolution. Yet, it remains unclear how implicit theories of relationships relate to close relationship violence—and *why* certain implicit theories may predict relationship violence. People who believe that successful relationships are nurtured through change and growth may experience satisfaction from sacrificing their own interests for the betterment of their relationship, presumably

because it puts the focus on cultivating the relationship instead of on their selfish interests. This increase in satisfaction with sacrifice may, in turn, relate to perpetrating lower levels of aggression against a close relationship partner.

Four studies provided consistent evidence supporting these hypotheses. All four studies showed that as growth beliefs increased, aggressive intentions and behaviors toward close relationship partners decreased. Study 1 showed that growth beliefs were associated with lower perpetration of violence in close relationships, such as slapping or throwing something at the partner that could hurt. Studies 2 and 4 replicated this finding, extended it longitudinally, and showed that growth beliefs continued to predict lower close relationship violence after controlling for relationship satisfaction. Study 3 demonstrated that growth beliefs were associated with stabbing a voodoo doll representing one's partner with fewer pins. Destiny beliefs did not reliably predict relationship violence. Thus, growth beliefs reliably and robustly predicted lower levels of close relationship violence.

Studies 3 and 4 showed that the relationship between growth beliefs and close relationship violence was mediated by heightened satisfaction from sacrificing one's interests in the relationship. In Study 3, satisfaction with sacrifice mediated the cross-sectional relationship between growth beliefs and lower aggressive intentions. In Study 4, satisfaction with sacrifice mediated the relationship between growth beliefs and lower aggressive behavior concurrently and prospectively. Therefore, part of why growth beliefs predict lower close relationship violence is their effect on bolstering the satisfaction people experience from sacrificing their own interests in their relationships.

More broadly, these findings offer novel evidence regarding the power of implicit theories of relationships in understanding the perpetration of violence in close relationships. Beliefs imbue life with richness, interest, and meaning. They can also play an integral role in promoting or inhibiting aggression, such as whether people believe that aggression is normative or if they think they have what it takes to carry out aggressive acts (Bandura, 1977; Huesmann & Guerra, 1997). By understanding how much people believe that successful relationships are grown and cultivated, researchers will have crucial information in understanding how likely people will sacrifice their own interests for the well-being of their relationship—and ultimately how likely people will behave aggressively toward a close relationship partner.

Limitations and Future Directions

The current research had several limitations. First, research by Knee et al. (2004) suggests that conflict is associated with lower commitment after disagreements, but that higher growth beliefs help to buffer against the association between conflict and commitment, especially when the topic of conflict remains unresolved. Destiny beliefs, however, do not have a similar effect. Future research could assess both the inclination to feel provoked to aggress and the likelihood of interpreting conflict as already being resolved.

Another limitation is that none of the current studies assessed the motivation underlying participants' aggressive behavior. It is possible that those striking back in self-defense are different than those initiating aggressive behaviors in the extent to which they adhere to growth beliefs. In addition, those with weaker growth beliefs may be less inclined to strike back in self-defense if hitting back is not perceived as

something that would enact change in the relationship. Future research should take into account the purpose of aggressive behavior.

A third limitation in this study is that the data were gathered only from one partner. Future research would benefit from gathering information from both partners. This additional information would help to identify dyadic processes that may influence aggression and allow further investigation of potential differences in aggressive behavior in relationships in which partners have similar or differing implicit theories of relationships.

Fourth, the current research was limited by the lack of assessment of other potential mediating or moderating variables. In addition to satisfaction with sacrifice, future research should examine additional potential mechanisms that may account for the relationship between growth beliefs and close relationship violence. The literature cites communication issues as one influential factor in the perpetration of close relationship violence (Flynn & Graham, 2010; Straus et al., 1980). Individuals who are unable to successfully express themselves verbally may perform violent acts in an attempt to communicate or express themselves in other ways. Those who believe that their partner will not listen to them may also resort to violence when it is perceived as the only way to get through to the other person (Flynn & Graham, 2010). Likewise, beliefs about communication and conflict within intimate relationships may influence whether or not an individual adopts violence as a form of communication. Those high in growth beliefs or those who believe that challenges are something to be overcome and that these challenges help relationships grow, will likely embrace verbal conflict, seeing it as a normal and healthy part of relationships.

Finkel, DeWall, Slotter, Oaten, and Foshee (2009) explain that while conflict can escalate to the point where an individual experiences a violent impulse, that urge does not always lead to a violent behavior. Individuals who do not resort to violence may believe that there is a better way of resolving the conflict that does not involve violence and exert self-control in an effort to override this impulse and to search for other methods of conflict resolution. Alternatively, the belief in potentially successful alternative methods of resolving conflict may prevent individuals from having violent impulses in the first place. Related to this, actual methods of conflict resolution are also likely to be related to both growth beliefs and the perpetration of violence in close relationships. Future research should investigate both self-control and conflict resolution as potential mediating factors between growth beliefs and close relationship violence.

Prior research has indicated that strong destiny beliefs are related to a lower tendency to forgive partners when individuals are experiencing state attachment anxiety, but not when they are experiencing state attachment security (Finkel et al., 2007). Forgiveness should also be investigated in the relationship between growth beliefs and close relationship violence. For example, it has been shown that people are more likely to forgive if they are less inclined to blame their partner or place responsibility for the conflict on their partner (Fincham, 2000; McCullough et al., 2003) or if they are less inclined to dwell on the transgression (Paleari et al., 2005). Those high in growth beliefs may be more inclined to forgive their partner after conflict because they view the conflict as a normal process in the relationship, therefore decreasing their likelihood of blaming their partner or dwelling on the issue.

It is also important to recognize that the findings in the current research are correlational in nature and that the results do not necessarily indicate the causal relations between growth beliefs, satisfaction with sacrifice, and the perpetration of violence in close relationships. Prior research (e.g., Finkel et al., 2007; Franiuk et al., 2004), however, has successfully manipulated implicit theories of relationships with lasting changes. Future research could prime participants for either growth or destiny beliefs by having them read an article that induces thoughts of growth or destiny beliefs in close relationships. It is anticipated that this type of an experiment would not only replicate the current findings, but it would also help in determining the direction of the relationship between the variables in question.

Conclusion

The results of these studies indicate that greater growth beliefs are related to less physical assault perpetrated in close interpersonal relationships over time, and that satisfaction with sacrifice mediates this relationship. Assessing growth beliefs may help to identify those at risk for aggressive behaviors in relationships. Additionally, therapists and relationship educators may find benefit in discussing implicit theories of relationships with clients who are in safe relationships in an effort to foster greater growth beliefs, and thereby decrease the potential of future aggressive behaviors within close relationships.

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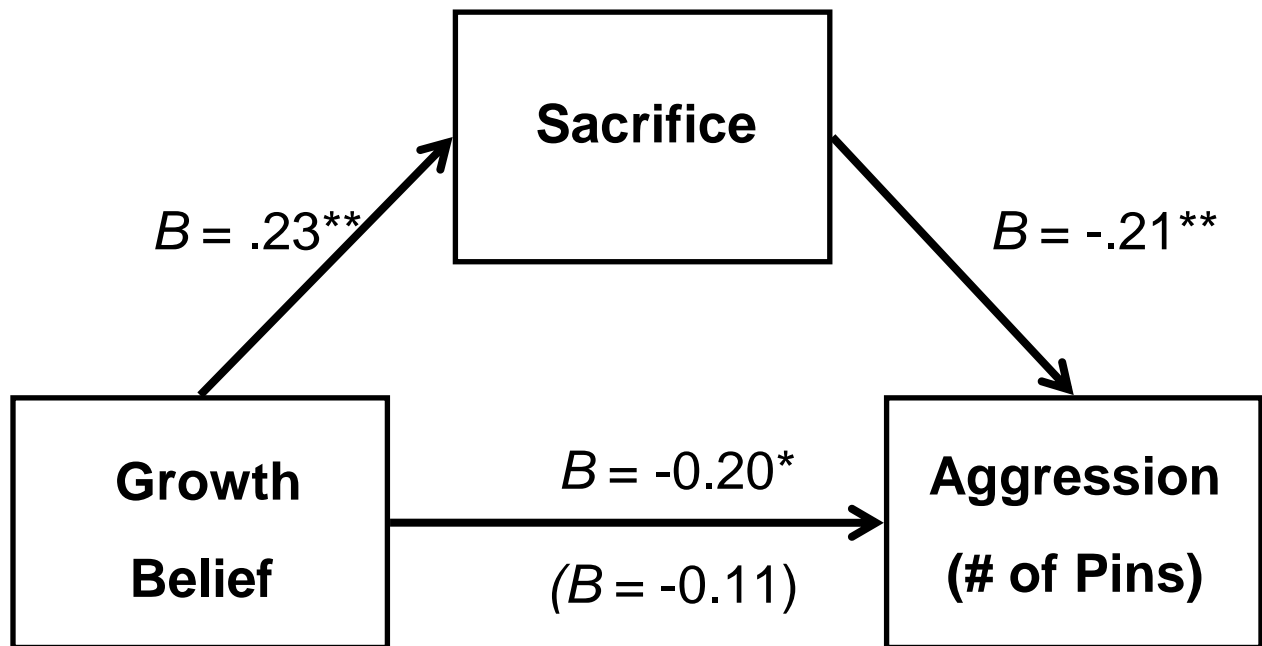
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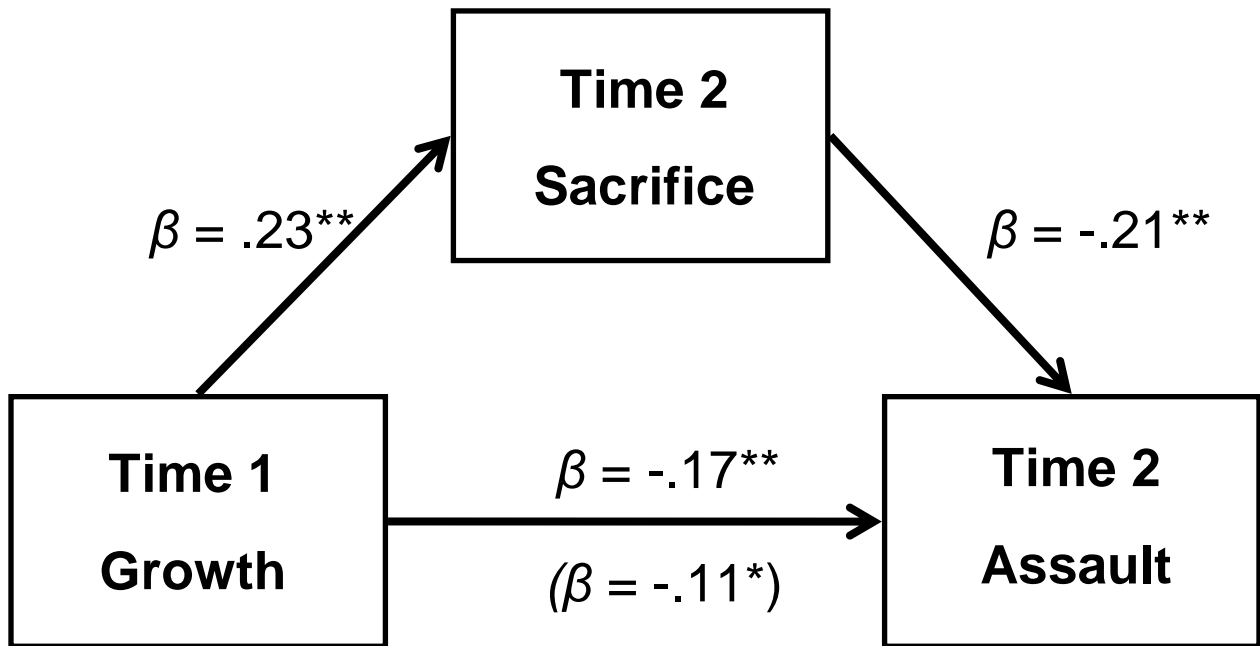
Figure 1. Study 3 mediation of growth belief and aggression by satisfaction with sacrifice (standardized regression results).



* $p < .05$

** $p < .01$

Figure 2. Study 4 mediation of growth belief and aggression by satisfaction with sacrifice (standardized regression results).



* $p < .01$

** $p < .001$