RESEARCH ARTICLE



Predicting Responses to Conflicts in Romantic Relationships from Life History Strategies, Psychopathy, and Values

Gleidson Diego Lopes Loureto¹ · Valdiney V. Gouveia¹ · Patrícia Nunes da Fonsêca¹ · Amage de Constante de Constante

Received: 14 July 2021 / Accepted: 1 November 2021 / Published online: 6 November 2021 © The Author(s), under exclusive licence to Springer Nature Switzerland AG 2021

Abstract

This study aimed to test the predictive power of individual differences in life history strategies (HS) on responses to conflicts in romantic relationships in a Brazilian sample (N=251). Additionally, we investigated the moderator role of psychopathy and endorsement of basic values in the relationship between life HS and responses to conflicts. The results showed that fast HS (vs. slow HS) predicted less constructive responses to conflict. In addition, the psychopathy trait and interactive values moderated the relationship between the fast HS and destructive responses to conflicts: when medium and high on psychopathy, individuals employ more destructive responses. In turn, when medium and high on interactive values, individuals respond less destructively to conflict. Overall, these empirical findings are theoretically sound within evolutionary assumptions. In conclusion, the current results support that individual differences in life HS may predict relationship outcomes. In addition, this study adds to the literature on romantic relationships by connecting individual variables like personality and human values to evolutionary hypotheses for the understanding of romantic interactions.

Keywords Life history theory · Values · Psychopathy · Responses to conflicts · Romantic relationships

Introduction

Conflicts are intrinsic and inevitable factors in romantic relationships (Carbonneau & Vallerand, 2013). An important variable in this context is related to individual reactions with regard to dysfunctional behaviors of a romantic partner. The process in which a partner displays the tendency to constrain destructive impulses in response to a partner's destructive action in favor of a constructive response is known as accommodation (Rusbult et al., 1986, 1991). The accommodation phenomenon is represented

Gleidson Diego Lopes Loureto diegoloureto.dl@gmail.com

Valdiney V. Gouveia vvgouveia@gmail.com

- ¹ Department of Psychology, Federal University of Paraíba, 58.051-900 João Pessoa, João Pessoa, PB, Brazil
- ² Federal University of Vale Do São Francisco, Petrolina, Brazil
- ³ Federal University of Ceara, Fortaleza, Brazil
- ⁴ Federal University of Mato Grosso, Cuiaba, Brazil
- ⁵ Federal University of Alagoas, Maceio, Brazil

by the "exit-voice-loyalty-neglect" taxonomy (Rusbult & Zembrodt, 1983) and has been categorized along two dimensions (Zembrodt & Gunn 1982): (a) constructive-destructive and (b) active-passive. The two dimensions comprise four responses to dissatisfaction: (a) Exit (destructive-active: threatening to leave the relationship, criticizing or derogating the partner, etc.), (b) Voice (constructive-active: discussing disagreements, recommending solutions, changing perspective), (c) Loyalty (constructive-passive: forgiving and forgetting the problems, maintaining trust in the partner, even in an unfavorable scenario), and (d) Neglect (destructive-passive: ignoring and evading the partner, as well as avoiding discussing problems; Rusbult et al., 1991).

Thus, accommodation (i.e., constructive responses) is the tendency to react to negative partner acts with relatively high levels of Voice and Loyalty and low levels of Exit and Neglect (Rusbult et al., 1991). In the context of romantic relationships, previous studies indicate that accommodation is positively associated with the preservation of relationship stability as well as with measures of relationship wellbeing and satisfaction. Additionally, accommodation can also buffer conflicts and tension between romantic partners (Fincham & Beach, 2010; Overall & Sibley, 2008; Rusbult et al., 1991, 1998; Wieselquist et al., 1999). From an evolutionary background, the motivation to solve the conflicts in romantic relationships and/or preserve relationships should be understood by its costs and benefits linked to ancestral survival and reproductive success (Young & Simpson, 2019). For example, there are advantages to maintaining commitment in a long-term relationship, such as having a highly appreciated and irreplaceable cooperation partner, an expanded cooperation networks, an extended family, and the sharing of resources in contexts of scarcity (Conroy-Beam et al., 2015). In turn, the benefits of shortterm mating include reducing commitment and investment in relationships, obtaining access to multiple sexual partners, and switching mates at any time (Buss & Schmitt, 2019).

Relationship maintenance is a vital topic in the field of relationship science (Young & Simpson, 2019) and this process, from an evolutionary point of view, is molded by multiple psychological mechanisms designed to solve longrecurring trade-offs (Kenrick, 2006). Thus, conflict resolution within romantic relationships may deal with a temporal dilemma, the length of relationships (Buss & Schmitt, 1993), in order to achieve mate retention (Buss, 2005). Based on the evolutionary model of life history theory (LHT; Charnov, 1993), we hypothesized that individual differences in how organisms allocate effort and energy to solving evolutionary trade-offs (i.e., fast-slow life history traits; Kaplan & Gangestad, 2005) predict accommodation in romantic settings. However, the relationship between the fast-slow life history traits and responses to conflicts in romantic relationships may also be influenced by other variables. Specifically, individual (i.e., Dark Triad) and psychosocial variables (i.e., human values) can display a unique contribution to the understanding of this phenomenon (Maio, 2017) and may serve as an explicative mechanism for constructive or destructive responses to conflicts in romantic relationships.

Conflicts in Romantic Relationships and Life History Theory

With regard to LHT, this theory describes how organisms allocate energy to growth, maintenance, and reproduction in order to maximize their fitness (Young & Simpson, 2019). It is worth noting that LHT relies on the notion that when time, effort, and resources are intrinsically limited, then the organisms employ strategic patterns in allocation resources (Figueredo et al., 2014); these patterns are classified along a continuum of "speed" that falls within a fast-slow continuum of LH variation (Charnov, 1993). Species originated from harsh and unpredictable environmental conditions have a fast life HS (i.e., *r*-selected; shorter lifespan, faster growth, lower parenting, higher mating effort); species from safe and predictable environments have slow life HS (i.e., *K*-selected; longer lifespan, slower growth, higher parenting, lower mating effort; Ellis et al., 2009). So, life HS are considered

adaptive solutions to overcome trade-offs (somatic effort vs. reproductive effort; Bjorklund et al., 2016).

When it comes to romantic relationships, different life HS will be related to different types of relationships (Figueredo et al., 2006). In other words, slow HS individuals are more likely to engage in long-term relationships. They allocate less time and energy in order to search for romantic partners, leading to greater stability in a relationship that can be translated into increased parental effort and long-term investment by another partner (Figueredo et al., 2006). Fast HS individuals are more likely to engage in short-term relationships, and they allocate more time and energy to the purpose of searching for romantic partners, meaning that less time is available for their current romantic partner and diminished efforts for parenting (Figueredo et al., 2006). Previous studies have demonstrated that slow HS positively predicts romantic relationship outcomes (e.g., relationship satisfaction; Olderbak & Figueredo, 2010) and inhibits violence against sexual partners (Figueredo et al., 2012). In turn, fast HS individuals display lower levels of attachment in relationships and it has been associated with a greater frequency of aggressive behaviors (Hurst & Kavanagh, 2017).

Dark Triad and Conflicts in Romantic Relationships

Beyond the life HS, studies investigated the prediction of another set of individual variables in relationship contexts that included the Dark Triad of personality, an increasing topic of interest in relationship studies (Lyons, 2019). The Dark Triad consists of three socially aversive personality variables: (a) narcissism: characterized by an inflated sense of self-importance, superiority, and dominance, (b) psychopathy: key elements include high impulsivity, low empathy, anxiety, and thrill-seeking behaviors, and (c) Machiavellianism: cynicism, an opportunistic worldview, and manipulativeness (Paulhus & Williams, 2002). Additionally, a consistent finding on these traits shows that men tend to score higher than women on Dark Triad (Gluck et al., 2020).

From an LHT perspective, the Dark Triad may reflect individual differences in life HS. Specifically, high levels of these traits, especially psychopathy, are associated with fast LH (Jonason et al., 2010) and its behavioral correlates, such as exploitative behavior, aggressive attitude, and poor social skills (Belsky et al., 2012). With regard to accommodation processes, prior research showed that Machiavellianism was related to both constructive and destructive responses; psychopathy (primary and secondary forms), in turn, was related only to destructive reactions; narcissism did not predict constructive or destructive behaviors in relationship contexts (Brewer et al., 2017). In addition, the Dark Triad traits positively predict preference for short-term relationships and avoid committing to a long-term relationship (Jonason et al., 2012) and may be an adaptive solution to unpredictable environments (Jonason et al., 2016), since they focus on mating efforts for the purpose of obtaining immediate sexual and survival benefits (Mealey, 1995).

Human Values and Conflicts in Romantic Relationships

Another psychological variable that explains people's behavior consists of human values. Based on the functional theory of human values (Gouveia, 2013), values express two main functions: guide behaviors (personal, central, or social goals) and are cognitive expressions of human needs (survival or thriving needs). This model presents six basic values: excitement and promotion (personal values), suprapersonal, and existence (central values) and interactive and normative (social values); thriving needs are represented by excitement, suprapersonal, and interactive values. In turn, promotion, existence, and normative values encompass the survival needs (Gouveia et al., 2014).

To date, no research has connected human values with accommodation, but previous studies have explored the role of people's value priorities in relationship dynamics based on the FTHV (Gouveia, 2013). In particular, empirical evidence shows that partners that prioritize interactive (affectivity, belonging, and support) and suprapersonal values (beauty, knowledge, and maturity) use more adaptive strategies in relationship conflicts (e.g., compromise: actions of negotiation, shared discussion; Freitas, 2017). In the same fashion, similar studies found that the interactive values were associated with higher levels of forgiveness in the contexts of divorce (Couto, 2017) and marriage (Fonsêca et al., 2017).

Finally, studies on the topic of mate preferences have already shown that social values (vs. personal values) may serve as cues of engagement for long-lasting relationships (Lopes et al., 2017; Loureto et al., 2022). These findings demonstrate that human values (i.e., what people consider important in life; Rohan, 2000) provide insights for the understanding of relationship dynamics, and can be viewed as an adaptive solution to dilemmas of survival and reproduction (Gouveia et al., 2014). Thus, from a life history framework, value systems may operate as a motivational coordinated adaptation in order to enable people to pursue their life history strategies (Jonason et al., 2018), providing value-specific functions in social interactions that encompass romantic relationships.

The Present Research

The present research aims to test the predictive power of individual differences in life (HS) on responses to conflicts in romantic relationships. Considering the contrast between slow HS individuals (e.g., altruistic, cautious risk-takers, long-term thinkers) and fast HS individuals (e.g., impulsivity, providing and receiving little social support; Figueredo et al., 2005), we expect that fast HS will positively predict destructive responses (i.e., accommodation reversed score). Yet, this prediction is strengthened by the assumptions of the parental investment theory (PIT; Trivers, 1972) that allows us to expect that there are life HS differences in mating strategy. Specifically, fast HS individuals might be less obligated to invest on their relationships because they are more inclined to low-cost mating opportunities than individuals with slow HS; thus, they are more likely to display destructive behaviors toward their romantic partners, given that the benefits of long-term bonds are perceived as less attractive when compared to the possible current rewards (e.g., desirable alternative mates).

Additionally, we tested the moderator role of psychopathy and endorsement of basic values in the relationship between life (HS) and responses to conflicts in romantic relationships. Specifically, due to the fact that psychopathy is the dark personality facet most strongly related to a fast life HS (Jonason et al., 2010), we expect that psychopathy will strengthen the relationship between fast HS and destructive responses. On the other hand, based on the aforementioned empirical evidence, we expect that interactive and suprapersonal values will weaken the relationship between fast HS and destructive responses (i.e., a buffering interaction effect), since they involve the protection of the well-being of those with whom one has regular intimate contact, as well as higher levels of altruism, forgiveness, etc. (Gouveia et al., 2014).

Method

Participants

Participants were 251 individuals ($M_{age} = 25.61$, SD = 5.86; 162 undergraduate students and 89 participants from general population). Most of them were females (66.0%), single (66.5%), from a middle-class background (50.6%), heterosexual (74.9%) and Catholics (54.6%). With regard to relationship types, 24.7% indicated that they were married or engaged to be married (n = 62), and 75.3% were in other relationship configurations (e.g., dating someone seriously, in an open relationship or living with a romantic partner, n = 189). The average of relationship length was 30.80 months (2.5 years, SD = 40.77). To determine whether the sample size obtained was adequate, a post hoc power analysis (G-Power version 3.1.9.4; Faul et al., 2009) was conducted, taking into account the following parameters: $\alpha = 0.05$, and a small effect size, $f^2 = 0.06$, the value found in the squared multiple correlation of the moderation analysis (i.e., multiple regression analysis). The power analysis showed that the sample size (n=251) had an adequate level of power (0.95) to detect such effects.

Measures

Mini-K (Figueredo et al., 2006) This scale is composed of 20 items and assesses the LH strategies. The participants indicated to what extent each statement describes them, using a 7-point scale, ranging from 1 (*Not at all*) to 7 (*Very much*). All the items were averaged into a composite score in which the higher scores indicate a faster life HS (α =0.81). In this study, the goodness-of-fit indexes of the Mini-K (i.e., a single-factor model) were as follows: *CFI*=0.90; *TLI*=0.90; *RMSEA* (90% CI)=0.09 (0.086 / 0.010).

Dark Triad Dirty Dozen (Jonason & Webster, 2010) The DTDD scale consists of 12 items that assess three aversive personality traits: psychopathy (e.g., I tend to lack remorse; $\alpha = 0.80$), Machiavellianism (e.g., *I tend to exploit others* towards my own end; $\alpha = 0.82$), and narcissism (e.g., I tend to want others to admire me; $\alpha = 0.83$). Participants rated the extent to which the statements described them using a five-point scale (ranging from 1 = Strongly disagree to $5 = Strongly \ agree$). In the present research, we used the DTDD's Brazilian adaptation (Gouveia et al., 2016). In this study, the goodness-of-fit indexes of the DTDD (i.e., three-factor model) were as follows: CFI = 1.00; TLI = 1.00; *RMSEA* (90% CI) = 0.07 (0.058 / 0.083). For this study, we considered psychopathy trait only. Following the original study, we computed scores for psychopathy trait by averaging their four respective items.

Basic Values Survey (Gouveia, 2013) This scale measures the endorsement of 18 specific values, organized into six-value basic values: Existence (α =0.53), Excitement (α =0.56), Normative (α =0.70), Suprapersonal (α =0.55), Interactive (α =0.52), and Promotion (α =0.57). The participants indicated how much each item is important as a guiding principle in their life, using a 7-point scale (ranging from 1=*Completely unimportant* to 7=*Of the utmost importance*). In this study, the goodness-of-fit indexes of the BVS (i.e., six-factor model) were as follows: *CFI*=0.97; *TLI*=0.97; *RMSEA* (90% CI)=0.02 (0.001 / 0.043). For this study, we considered Interactive and Suprapersonal values only. Following Gouveia (2013), we derived scores for both classes of values by averaging their three respective items.

Accommodation Scale (Rusbult et al., 1991) This is a 16-item scale designed to measure the way that a person reacts to negative partner actions through four dimensions: Exit (e.g., *I would threaten to leave him/her*; $\alpha = 0.76$), Neglect (e.g., *I would avoid dealing with the situation*; $\alpha = 0.74$), Voice (e.g., *I would try to resolve the situation and improve conditions*; $\alpha = 0.79$), and Loyalty (e.g., *I would patiently wait for things to improve*; $\alpha = 0.66$). The participants indicated how often they respond as described on a 9-point scale (ranging from 1 = Never do this to 9 = Constantly do this). After reverse-scoring voice and loyalty, a mean item score was computed with higher scores representing destructive responses (i.e., lower levels of accommodation). In this study, the goodness-of-fit indexes of the AS (i.e., a single-factor model) were as follows: CFI=0.92; TLI=0.90; RMSEA (90% CI)=0.08 (0.074 / 0.091).

Procedures

All the participants were recruited through social networks (e.g., Instagram), and answered an online questionnaire. This was a non-probabilistic sample, with individuals voluntarily deciding to participate (i.e., snowball sampling; Dusek et al., 2015). A contact email was available for any questions, and informed consent was obtained from all the participants included in the study. Additionally, the Ethics Committee of a public university in Brazil (Process N° 3.939.602, Healthy Sciences Centre) approved this study. On average, the participation required 15 min to complete the questionnaire.

Data Analysis

Statistical analyses were performed using the R language (R Development Core Team, 2015). The descriptive statistics, comparative and correlational analysis were performed through the *R Commander* interface provided by the *Rcmdr* package (Fox, 2017). The hierarchical multiple regressions and moderation analysis including post hoc probing of the interaction's terms (i.e., conditional effects of the focal predictor for different levels of the moderators) were tested using the *Psych* package (Revelle, 2019).

Results

Zero-order correlations were calculated to explore the relations between fast HS and all the other measured indicators (see Table 1). Firstly, fast HS was positively associated with destructive responses to conflict and psychopathy. With reference to human values, fast HS was negatively correlated with interactive and suprapersonal values. In addition, psychopathy presented a positive correlation with destructive responses. Finally, interactive and suprapersonal values were negatively correlated with destructive responses. Finally, interactive and suprapersonal values were negatively correlated with destructive responses. In addition, we tested gender differences in psychopathy, reporting the unbiased measure of Hedge's g in order to adjust for unequal group sizes. In sum, men (M=2.09, SD=1.13) scored higher than women [M=1.67, SD=0.77, t(123)=3.05, p=0.002, g=0.46].

Next, regression analyses were conducted to the prediction of destructive responses (accommodation reversed

	1	2	3	4	5
1. Fast HS	-				
2. Psychopathy	0.25 (<0.001)	-			
3. Interactive	-0.48 (<0.001)	-0.21 (<0.001)	-		
4. Suprapersonal	-0.23 (0.002)	-0.02 (0.974)	0.32 (<0.001)	-	
5. Destructive responses	0.18 (0.003)	0.17 (0.011)	-0.13 (0.035)	-0.14 (0.022)	-

 Table 1
 Correlations of fast HS with psychopathy, interactive/suprapersonal values and destructive responses

Values in parentheses are p-values

score). In sum, fast HS positively predicted the criterion variable [F(1, 249) = 9.18, $\beta = 0.18$, p = 0.003]. In addition, psychopathy [F(1, 249) = 6.49, $\beta = 0.16$, p = 0.007] predicted higher levels of destructive responses, whereas interactive ($\beta = -0.14$, p = 0.022) and suprapersonal values ($\beta = -0.15$, p = 0.038) predicted lower levels of conflicts [F(2, 248) = 3.41]. Furthermore, we tested moderation effects of psychopathy, interactive, and suprapersonal values on the fast HS \rightarrow destructive responses; three interaction items were created by first standardizing the scores (Cohen et al., 2003). Following the procedures by Miles and Shevlin (2001), we entered the independent and the moderating variables in step 1, and their interaction term at step 2 for each regression model (see Table 2).

Reports for the moderated regression hierarchical (Table 2) indicate that only psychopathy and interactive values moderated the relationship between fast HS and destructive responses (accommodation reversed score). To

further analyze the moderating effect of these variables, we plotted the effects for the whole range of fast HS (see Fig. 1). Figure 1A shows the impact of fast HS on destructive responses for all levels of psychopathy (controlling for participant gender). The simple slope analysis indicated that the relationship between fast HS and destructive responses was stronger for those individuals with medium ($\beta = 0.13$, p = 0.023) and high levels of psychopathy ($\beta = 0.18$, p = 0.001); for those with low levels of psychopathy, the slope was non-significant ($\beta = 0.05, p = 0.504$). In constrast, Fig. 1B shows that the relationship between fast HS and destructive responses was weaker for those individuals with medium ($\beta = 0.14$, p = 0.006) and high levels of interactive values ($\beta = 0.20$, p = 0.001). The slope was non-significant $(\beta = 0.05, p = 0.504)$ for individuals with low levels of interactive values ($\beta = 0.05, p = 0.453$).

Discussion

The current study aimed to investigate the predictive power of life HS on responses to conflicts in romantic relationships. In addition, we investigated the moderator role of dark personality and endorsement of basic values in the relation between life history strategies (HS) and responses to conflicts. In sum, as expected, for individuals that display fast HS (vs. slow HS) more destructive responses to conflict were observed. In a second step, we found a moderating effect of psychopathy trait and interactive values on the link fast HS-destructive responses. Specifically, when medium and high on psychopathy, individuals employ more destructive responses; in turn, when medium and high on interactive values, individuals respond less destructively to conflict.

Table 2 Moderated regression hierarchical results predicting destructive responses

Destructive responses (accommodation reversed score)											
	Step 1				Step 2						
	$\overline{F(df)}$	β	<i>t</i> -value	Standard errors	$\overline{F(df)}$	β	<i>t</i> -value	Standard errors			
Fast HS	7.16	0.16**	2.69	0.06		0.12**	2.70	0.04			
Psychopathy	(2, 248)	0.14**	2.25	0.06	6.17	0.14**	2.73	0.04			
Interaction 1		-	-	-	(3, 247)	0.10**	2.04	0.03			
Fast HS	4.95	0.15**	2.29	0.06		0.14**	2.10	0.04			
Interactive	(2, 248)	-0.10^{**}	-2.10	0.06	4.82	-0.11**	-2.00	0.04			
Interaction 2		-	-	-	(3, 247)	0.13**	2.10	0.03			
Fast HS	6.79	0.12*	2.00	0.05		0.10*	2.30	0.03			
Suprapersonal	(2, 248)	-0.15*	-2.40	0.05	4.60	-0.13	-0.90	0.30			
Interaction 3		-	-	-	(3, 247)	0.02	0.35	0.32			

F F statistic, β standardized values, Interaction 1=fast HS×psychopathy, Interaction 2=fast HS×interactive values, Interaction 3=fast HS×suprapersonal values

p < 0.05; *p < 0.01



Fig. 1 The relation between fast HS and destructive responses at low, medium, and high levels of psychopathy trait/interactive values

With regard to destructive responses, as expected, fast HS positively predicted this phenomenon. In fact, individuals with a faster HS are hypothesized to exhibit specific psychosocial characteristics like short-term thinking, lower levels of social support, and cooperation, as well as risk-taking (Figueredo et al., 2006). Thus, these psychological traits may predict self-centered impulses (i.e., the opposite pattern to a self-regulation process; Rusbult et al., 1991), describing individuals more likely to reciprocate a partner's destructive behavior (Gottman, 1998), leading to negative effects on relationship functioning (Rusbult et al., 1991). In the same fashion, previous studies showed that couples with a slower average life HS reported higher levels of relationship satisfaction, as well as lower relationship dissolution rates (Olderbak & Figueredo, 2010).

It is worth noting that the relationship between life HS and aggressive behaviors in romantic involvements might be somewhat more complex, since there are inherent constraints in real life. Thus, this association may encompass the trade-off involving relationship maintenance versus finding an alternative mate in one's current environment. The Developmental Strategic Pluralism Model (DSPM; Young & Simpson, 2019) may shed light on this dilemma. The DSPM, in order to explain the relationship maintenance/dissolution inclinations, states that it depends on both an individual's developmental history and his/her current environment. Specifically, when partners display dissimilar reproductive strategies and the current environment is not harsh, it is predicted that both individuals should remain inclined to maintain their relationship. In contrast, if the current environment unexpectedly turns unpredictable, the partner with the faster strategy may become more inclined to enact relationship dissolution behaviors; the partner with the slower strategy, in order to rescue long-term investments, to a certain extent, should engage in relationship maintenance behaviors. Other constraints of mate selection are related to realistic mating markets and their dynamics, such as the preferred partner may not exist in the environment and mutual mate selection (i.e., individuals select their desirable partners, but they can also be selected by a partner) (Conroy-Beam & Buss, 2016).

In line with our predictions, psychopathy predicted greater destructive responses in romantic relationships, as reported in previous studies (e.g., Brewer et al., 2017). In addition, the psychopathy trait moderated the fast HS destructive response link: as psychopathy increased, the predictive relationship between those links strengthened. This hypothesis was specifically formulated based on previous evidence that demonstrated that psychopathy, when compared to Machiavellianism and narcissism, was conceived as the most harmful indicator (i.e., the most toxic Dark Triad trait) for relationship quality (Kardum et al., 2018). Indeed, individuals with higher levels of psychopathy embody traits of a fast HS (Jonason et al., 2010) and have been associated with violence in intimate relationships (Swogger et al., 2007), diminished self-control, and an inability to consider the future consequences of their current actions (Jonason & Tost, 2010).

In addition, based on the assumption that values stimulate behaviors (Bardi & Schwartz, 2003), we observed that placing greater value on suprapersonal (focus on reflection on life; Vaillant, 2002) and interactive values (focus on social goals, belonging, love, and affiliation; Maslow, 1954) predicted less destructive responses in romantic conflicts; indeed, at a theoretical level, these values are more central to maintaining one's interpersonal relationships (Gouveia et al., 2014) and empirical findings support this prediction (Couto, 2017; Fonsêca et al., 2017; Freitas, 2017). Thus, the current findings are in line with previous research demonstrating that suprapersonal values promote marital satisfaction, stimulate problem-solving, and are related to the couple's self-realization (Almeida, 2016). Theoretically, according to FTHV, this class of values involves a humanitarian type of motivator and represents an idealistic concern that describes individuals with open-mindedness who treat all people around them equally (Gouveia et al., 2014).

As observed, only the interactive values moderated the fast HS destructive response relationship: as interactive values increased, the predictive relationship between those links weakened. The non-significant interaction for suprapersonal values may be partially explained because these values, in general, become more important with age (Vaillant, 2002), whereas interactive values describe concerns shared by people at a different stage of their lives and are essential for human well-being in a wide range of contexts, such as in romantic relationships (Baumeister, 2005). Indeed, interactive values are associated to valuing and maintaining social relationships (Gouveia, 2013), and also contribute to regulating the interactions between romantic partners in favor of established relationships; by endorsing interactive values, these subjects are more likely to solve conflicts once they place more emphasis on feelings of care and affection with their romantic partners (Fonsêca et al., 2017; Freitas, 2017). From an evolutionary point of view, the interactive values may serve as cues to agreeableness and empathy (Olver & Mooradian, 2003), which are rated as desirable characteristics in long-term relationships for both men and women, cross-culturally (Buss, 1989).

Despite these findings, some limitations can be highlighted. Firstly, we relied on Brazilian convenience samples, which restrict the generalizability of the current findings. Thus, future studies can include more heterogeneous samples (e.g., different social class levels, homosexual couples, long-married couples). Moreover, the self-report measures used in this research do not effectively control for some potential response bias. Given that the instruments measure desirable and undesirable psychological attributes, upcoming investigations should focus on their social desirability effects (Rogers, 2008).

In addition, we used a relatively short instrument of life HS that measures the "fast-slow paradigm" and, although it can be seen as a productive heuristic for understanding individual differences (Del Giudice, 2020), it limits more comprehensive analysis. Thus, future research should include a more diverse set of adult life HS indicators, such as measures of sensation-seeking and risk-taking to assess mating competition, other indicators such as pubertal timing, sexual debut, and life span, as well as socioecological conditions, for example, unpredictability, parental harshness, and socioeconomic status (Richardson et al., 2017) in order to tap into the multidimensional nature of the life history construct (Jonason et al., 2013). Also, psychopathy was measured with a brief instrument, and future investigations could use standard psychopathy scales and check whether the reported findings can be replicated for psychopathy sub-facets. Finally, the cross-sectional design restricted potential inferences of causal mechanisms among variables tested. Future investigations are required to address this gap, exploring further related phenomenon through experimental studies, beyond self-report methods (e.g., manipulating the effects of slow/ fast HS, basic values, and psychopathy on the perception of conflict resolution strategies in romantic settings; Loureto et al., 2022).

Conclusion

The current study tested the predictive power of the evolutionary model of LHT on responses to conflicts in romantic relationships in a Brazilian sample, going beyond the WEIRD countries (Henrich et al., 2010). These findings corroborated that individual differences in life history strategy, based on the theory of natural selection, may predict relationship outcomes (Olderbak & Figueredo, 2009, 2010). Yet, we found a moderating effect of the psychopathy trait and interactive values on the link fast HS-destructive responses. In sum, this study adds to the literature on romantic relationships by connecting individual variables like personality and human values to evolutionary hypotheses for the understanding of romantic interactions. Finally, these results have interventional potential in clinical settings (e.g., identifying psychological variables that might be beneficial for regulating long-lasting romantic relationships). With regard to subclinical psychopathy, the first goal of couple therapy may prioritize the reduction of impulsive and antisocial behaviors (Mayer et al., 2020). In addition, individual differences in interactive values can be a flourishing avenue in the clinical setting to optimize relationship functioning, given their moderating role in decreasing destructive responses to dissatisfaction in romantic involvements.

Author Contribution Gleidson Diego Lopes Loureto: Conceptualization, data curation, formal analysis, investigation, writing — review and editing. Valdiney V. Gouveia: Conceptualization, data curation, formal analysis, investigation, writing — review and editing. Patrícia Nunes da Fonsêca: Writing — review and editing. Marina Pereira Gonçalves: Writing — review and editing. Walberto Silva dos Santos: Writing review and editing. Renan Pereira Monteiro: Writing — review and editing. Leogildo Alves Freires: Writing — review and editing. **Funding** This work was supported by the National Council for Scientific and Technological Development (CNPq, Brazil, http://cnpq.br/) awarded to the second author.

Data Availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Code Availability The codes used during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics Approval All the procedures performed in the studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Consent to Participate Before data collection, we obtained the informed consent of all the participants.

Consent for Publication Before data collection, we obtained the informed consent of all the participants in terms of publication of the findings.

Conflict of Interest The authors declare no competing interests.

References

- Almeida, A. C. (2016). Marital satisfaction and human values of couples from remarried and intact families [in Portuguese]. Unpublished master's dissertation. Brazil: Federal University of Paraiba.
- Bardi, A., & Schwartz, S. H. (2003). Values and behavior: Strength and structure of relations. *Personality and Social Psychology Bulletin*, 29(10), 1207–1220. https://doi.org/10.1177/0146167203254602
- Baumeister, R. F. (2005). The cultural animal: Human nature, meaning, and social life. Oxford University Press.
- Belsky, J., Schlomer, G. L., & Ellis, B. J. (2012). Beyond cumulative risk: Distinguishing harshness and unpredictability as determinants of parenting and early life history strategy. *Developmental Psychology*, 48(3), 662–673. https://doi.org/10.1037/a0024454
- Bjorklund, D. F., Blasi, C. H., & Eliss, B. J. (2016). Evolutionary developmental psychology. In D. M. Buss (Ed.), *The handbook* of evolutionary psychology (pp. 904–924). Wiley.
- Brewer, G., Bennett, C., Davidson, L., Ireen, A., Phipps, A. J., Stewart-Wilkes, D., & Wilson, B. (2017). Dark triad traits and romantic relationship attachment, accommodation, and control. *Personality and Individual Differences*, 120, 202–208. https://doi.org/10. 1016/j.paid.2017.09.008
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, 12(1), 1–49. https://doi.org/10.1017/S0140525X00023992
- Buss, D. M. (2005). The handbook of evolutionary psychology: John Wiley & Sons.
- Buss, D., & Schmitt, D. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, 100(2), 204–232. https://doi.org/10.1037/0033-295X.100.2.204
- Buss, D. M., & Schmitt, D. P. (2019). Mate preferences and their behavioral manifestations. *Annual Review of Psychology*, 70, 77–110. https://doi.org/10.1146/annurev-psych-010418-103408

- Carbonneau, N., & Vallerand, R. J. (2013). On the role of harmonious and obsessive romantic passion in conflict behavior. *Moti*vation and Emotion, 37(4), 743–757. https://doi.org/10.1007/ s11031-013-9354-5
- Charnov, E. L. (1993). Life history invariants. Oxford University Press.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). Applied multiple regression/correlation analysis for the behavioral sciences (3rd ed.). Erlbaum.
- Conroy-Beam, D., & Buss, D. M. (2016). Do mate preferences influence actual mating decisions? Evidence from computer simulations and three studies of mated couples. *Journal of Personality* and Social Psychology, 111(1), 53–66. https://doi.org/10.1037/ pspi0000054
- Conroy-Beam, D., Goetz, C. D., & Buss, D. M. (2015). Why do humans form long-term mateships? An evolutionary game-theoretic model. In Advances in experimental social psychology, (Vol. 51, pp. 1–39). Academic Press.
- Couto, R. N. (2017). Forgiveness and post-traumatic growth in the framework of divorce: An explanation induced in human values [in Portuguese]. Unpublished master's dissertation. Brazil: Federal University of Paraiba.
- Del Giudice, M. (2020). Rethinking the fast-slow continuum of individual differences. *Evolution and Human Behavior*, 41(6), 536–549. https://doi.org/10.1016/j.evolhumbehav.2020.05.004
- Dusek, G. A., Yurova, Y. V., & Ruppel, C. P. (2015). Using social media and targeted snowball sampling to survey a hard-to-reach population: A case study. *International Journal of Doctoral Studies*, 10, 279–299. https://doi.org/10.28945/2296
- Ellis, B. J., Figueredo, A. J., Brumbach, B. H., & Schlomer, G. L. (2009). Fundamental dimensions of environmental risk. *Human Nature*, 20(2), 204–268. https://doi.org/10.1007/ s12110-009-9063-7
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41, 1149–1160. https://doi.org/10.3758/BRM.41.4.1149
- Figueredo, A. J., Vásquez, G., Brumbach, B. H., Schneider, S., Sefcek, J. A., Tal, I. R., Hill, D., Wenner, C. J., & Jacobs, W. J. (2006). Consilience and life history theory: From genes to brain to reproductive strategy. *Developmental Review*, 26(2), 243–275. https:// doi.org/10.1016/j.dr.2006.02.002
- Figueredo, A. J., Vásquez, G., Brumbach, B. H., Sefcek, J. A., Kirsner, B. R., & Jacobs, W. J. (2005). The K-factor: Individual differences in life history strategy. *Personality and Individual Differences*, 39(8), 1349–1360. https://doi.org/10.1016/j.paid.2005.06.009
- Figueredo, A. J., Wolf, P. S. A., Olderbak, S. G., Gladden, P. R., Fernandes, H. B. F., Wenner, C., Hill, D., Andrzejczak, D. J., Sisco, M. M., Jacobs, W. J., Hohman, Z. J., Sefcek, J. A., Kruger, D., Howrigan, D. P., MacDonald, K., & Rushton, J. P. (2014). The psychometric assessment of human life history strategy: A meta-analytic construct validation. *Evolutionary Behavioral Sciences*, 8(3), 148–185. https:// doi.org/10.1037/h0099837
- Figueredo, A. J., Gladden, P. R., & Beck, C. J. A. (2012). Intimate partner violence and life history strategy. In T. K. Shackleford & A. T. Goetz (Eds.), Oxford library of psychology. The Oxford handbook of sexual conflict in humans. (p. 72–99). Oxford University Press.
- Fincham, F. D., & Beach, S. R. (2010). Of memes and marriage: Toward a positive relationship science. *Journal of Family Theory* & *Review*, 2(1), 4–24. https://doi.org/10.1111/j.1756-2589.2010. 00033.x
- Fonsêca, P. N., Lopes, B. J., Gusmão, E. E. S., Pessoa, V. S. A., Couto, R. N., & Silva, M. I. F. (2017). Marital forgiveness: An explanation based on human values. *Trends in Psychology*, 25(4), 1913– 1926. https://doi.org/10.9788/tp2017.4-20pt
- Fox, J. (2017). Using the R Commander: A point-and-click interface or R. Chapman and Hall/CRC Press.

- Freitas, N. B. C. (2017). Strategies for the resolution of marital conflicts: An explanation from personality and human values [in Portuguese]. Unpublished master's dissertation. Brazil: Federal University of Paraiba.
- Gluck, M., Heesacker, M., & Choi, H. D. (2020). How much of the dark triad is accounted for by sexism? *Personality and Individual Differences*, 154, 109728. https://doi.org/10.1016/j.paid.2019.109728
- Gottman, J. M. (1998). Psychology and the study of marital processes. Annual Review of Psychology, 49, 169–197. https://doi.org/10. 1146/annurev.psych.49.1.169
- Gouveia V. V. (2013). Functional theory of human values: Fundamentals, applications and perspectives [in Portuguese]. São Paulo, Brazil: Casa do Psicólogo.
- Gouveia, V. V., Milfont, T. L., & Guerra, V. M. (2014). Functional theory of human values: Testing its content and structure hypotheses. *Personality and Individual Differences*, 60, 41–47. https:// doi.org/10.1016/j.paid.2013.12.012
- Gouveia, V. V., Monteiro, R. P., Gouveia, R. S. V., Athayde, R. A. A., & Cavalcanti, T. M. (2016). Avaliando o lado sombrio da personalidade: Evidências psicométricas do Dark Triad Dirty Dozen. *Interamerican Journal of Psychology*, 50(3), 420–432. Retrieved from http://www.redalyc.org/articulo.oa?id=28450492010
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33(2–3), 61–83. https://doi.org/10.1017/S0140525X0999152X
- Hurst, J. E., & Kavanagh, P. S. (2017). Life history strategies and psychopathology: The faster the life strategies, the more symptoms of psychopathology. *Evolution and Human Behavior*, 38(1), 1–8. https://doi.org/10.1016/j.evolhumbehav.2016.06.001
- Jonason, P. K., & Tost, J. (2010). I just cannot control myself: The Dark Triad and self-control. *Personality and Individual Differences*, 49(6), 611–615. https://doi.org/10.1016/j.paid.2010.05.031
- Jonason, P. K., & Webster, G. D. (2010). The dirty dozen: A concise measure of the dark triad. *Psychological Assessment*, 22(2), 420–432. https://doi.org/10.1037/a0019265
- Jonason, P. K., Foster, J. D., Kavanagh, P. S., Gouveia, V. V., & Birkás, B. (2018). Basic values and the Dark Triad traits. *Journal of Indi*vidual Differences, 39(4), 220–228. https://doi.org/10.1027/1614-0001/a000267
- Jonason, P. K., Icho, A., & Ireland, K. (2016). Resources, harshness, and unpredictability: The socioeconomic conditions associated with the Dark Triad traits. *Evolutionary Psychology*, 14(1), 1–11. https://doi.org/10.1177/1474704915623699
- Jonason, P. K., Koenig, B. L., & Tost, J. (2010). Living a fast life: The Dark Triad and life history theory. *Human Nature*, 21(4), 428–442. https://doi.org/10.1007/s12110-010-9102-4
- Jonason, P. K., Luevano, V. X., & Adams, H. M. (2012). How the Dark Triad traits predict relationship choices. *Personality and Individual Differences*, 53(3), 180–184. https://doi.org/10.1016/j. paid.2012.03.007
- Jonason, P. K., Lyons, M., Bethell, E. J., & Ross, R. (2013). Different routes to limited empathy in the sexes: Examining the links between the Dark Triad and empathy. *Personality and Individual Differences*, 54(5), 572–576. https://doi.org/10.1016/j.paid.2012.11.009
- Kaplan, H. S., & Gangestad, S. W. (2005). Life history theory and evolutionary psychology. In D. M. Buss (Ed.), *The handbook of* evolutionary psychology (pp. 68–95). Wiley.
- Kardum, I., Hudek-Knezevic, J., Mehic, N., & Pilek, M. (2018). The effects of similarity in the Dark Triad traits on the relationship quality in dating couples. *Personality and Individual Differences*, 131, 38–44. https://doi.org/10.1016/j.paid.2018.04.020
- Kenrick, D. T. (2006). A dynamical evolutionary view of love. In R. J. Sternberg & K. Weis (Eds.), *Psychology of love* (2nd ed., pp. 15–34). Yale University Press.
- Lopes, G. S., Barbaro, N., Sela, Y., Jeffery, A. J., Pham, M. N., Shackelford, T. K., & Zeigler-Hill, V. (2017). Endorsement of social and personal

values predicts the desirability of men and women as long-term partners. *Evolutionary Psychology*, *15*(4), 1–8. https://doi.org/10.1177/ 1474704917742384

- Loureto, G. D. L., Gouveia, V. V., Fonsêca, P. N., Gonçalves, M. P., Santos, W. S., Monteiro, R. P., & Freires, L. A. (2022). Desirability of a long-term partner: Effects of life strategies and endorsement of basic values. *Personality and Individual Differences, 184*, 111181. https://doi.org/10.1016/j.paid.2021.111181
- Lyons, M. (2019). Mating strategies (mate competition, mate attraction, and established relationships). In M. Lyons (Ed.), *The Dark Triad* of personality: Narcissism, Machiavellianism, and psychopathy in everyday life (pp. 81–110). Academic Press.
- Maio, G. R. (2017). *The psychology of human values. European Mono*graphs in Social Psychology. Psychology Press.
- Maslow, A. H. (1954). Motivation and personality. Harper and Row.
- Mayer, J., Savard, C., Brassard, A., Lussier, Y., & Sabourin, S. (2020). Subclinical psychopathic traits and romantic attachment in treatment-seeking couples. *Journal of Marital and Family Therapy*, 46(1), 165–178. https://doi.org/10.1111/jmft.12387
- Mealey, L. (1995). The sociobiology of sociopathy: An integrated evolutionary model. *Behavioral and Brain Sciences*, 18(3), 523–599. https://doi.org/10.1017/S0140525X00039595
- Miles, J., & Shevlin, M. (2001). Applying regression & correlation: A guide for students and researchers. Sage Publications.
- Olderbak, S., & Figueredo, A. J. (2009). Predicting romantic relationship satisfaction from life history strategy. *Personality and Individual Differences*, 46(5–6), 604–610. https://doi.org/10.1016/j. paid.2008.12.019
- Olderbak, S. G., & Figueredo, A. J. (2010). Life history strategy as a longitudinal predictor of relationship satisfaction and dissolution. *Personality and Individual Differences*, 49(3), 234–239. https:// doi.org/10.1016/j.paid.2010.03.041
- Olver, J. M., & Mooradian, T. A. (2003). Personality traits and personal values: A conceptual and empirical integration. *Personality and Individual Differences*, 35(1), 109–125. https://doi.org/10.1016/ S0191-8869(02)00145-9
- Overall, N. C., & Sibley, C. G. (2008). When accommodation matters: Situational dependency within daily interactions with romantic partners. *Journal of Experimental Social Psychology*, 44(1), 95–104. https://doi.org/10.1016/j.jesp.2007.02.005
- Paulhus, D., & Williams, K. (2002). The Dark Triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, 36(6), 556–563. https://doi.org/10.1016/ S0092-6566(02)00505-6
- R Development Core Team. (2015). *R: A language and environment* for statistical computing. Retrieved from https://cran.r-project.org/ doc/manuals/fullrefman.pdf
- Revelle, W. (2019). Package 'psych'. Retrieved from https://personality-project.org/r/psych-manual.pdf
- Richardson, G. B., Sanning, B. K., Lai, M. H., Copping, L. T., Hardesty, P. H., & Kruger, D. J. (2017). On the psychometric study of human life history strategies: State of the science and evidence of two independent dimensions. *Evolutionary Psychology*, 15(1), 1474704916666840. https://doi.org/10.1177/1474704916666840
- Rogers, R. (2008). Detection strategies for malingering and defensiveness. In R. Rogers (Ed.), Clinical assessment of malingering and deception (3rd ed, pp. 14–35). New York, NY: Guilford.
- Rohan, M. J. (2000). A rose by any name? The values construct. Personality and Social Psychology Review, 4(3), 255–277. https:// doi.org/10.1207/S15327957PSPR0403_4
- Rusbult, C. E., & Zembrodt, I. M. (1983). Responses to dissatisfaction in romantic involvements: A multidimensional scaling analysis. *Journal of Experimental Social Psychology*, 19(3), 274–293. https://doi.org/10.1016/0022-1031(83)90042-2
- Rusbult, C. E., Bissonnette, V. L., Arriaga, X. B., & Cox, C. L. (1998). Accommodation processes during the early years of marriage. In

T. N. Bradbury (Ed.), *The developmental course of marital dysfunction* (pp. 74–113). Cambridge University Press.

- Rusbult, C. E., Johnson, D. J., & Morrow, G. D. (1986). Determinants and consequences of exit, voice, loyalty, and neglect: Responses to dissatisfaction in adult romantic involvements. *Human Relations*, 39(1), 45–63. https://doi.org/10.1177/001872678603900103
- Rusbult, C. E., Verette, J., Whitney, G. A., Slovik, L. F., & Lipkus, I. (1991). Accommodation processes in close relationships: Theory and preliminary empirical evidence. *Journal of Personality and Social Psychology*, 60(1), 53–78. https://doi.org/10.1037/0022-3514.60.1.53
- Rusbult, C. E., Zembrodt, I. M., & Gunn, L. K. (1982). Exit, voice, loyalty, and neglect: Responses to dissatisfaction in romantic involvements. *Journal of Personality and Social Psychology*, 43(6), 1230–1242. https://doi.org/10.1037/0022-3514.43.6.1230
- Swogger, M. T., Walsh, Z., & Kosson, D. S. (2007). Domestic violence and psychopathic traits: Distinguishing the antisocial batterer from

other antisocial offenders. *Aggressive Behavior*, *33*(3), 253–260. https://doi.org/10.1002/ab.20185

- Trivers, R. (1972). *Parental investment and sexual selection*. Harvard University.
- Vaillant, G. E. (2002). Aging well. Little, Brown.
- Wieselquist, J., Rusbult, C. E., Foster, C. A., & Agnew, C. R. (1999). Commitment, pro-relationship behavior, and trust in close relationships. *Journal of Personality and Social Psychology*, 77(5), 942–966. https://doi.org/10.1037/0022-3514.77.5.942
- Young, E. S., & Simpson, J. A. (2019). An evolutionary, life history theory perspective on relationship maintenance. In B. G., Ogolsky, J. K., Monk (Eds.) *Relationship maintenance: Theory, process,* and context (pp. 29–46). Cambridge University Press.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.