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Predicting romantic relationship satisfaction from life history strategy [☆]

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ABSTRACT

Attachment style and communication style have been shown in previous research to predict relationship satisfaction. We hypothesized that the ultimate cause underlying the relationship among attachment style, communication style, and relationship satisfaction is Life History Strategy (LHS). Furthermore, we hypothesized that LHS would not only predict relationship satisfaction indirectly through a couple's attachment style and communication style, but would also predict relationship satisfaction directly. Two structural equation models were constructed to model and test each of these hypotheses. The first showed that the indirect causal pathways from LHS to attachment style, attachment style to communication style, and communication style to relationship satisfaction predicted 16% of the variance in relationship satisfaction. The second added a causal pathway directly from LHS to relationship satisfaction which reduced the estimate for the influence of communication style on relationship satisfaction and increased the total variance predicted in relationship satisfaction to 60%. These results challenge the notion that it is primarily the communication between two romantic partners which influences their relationship outcome by proposing that their LHS may be influential: (1) indirectly through their attachment style and communication style; and (2) directly upon relationship satisfaction.

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The purpose of this paper is to explore the connections among several predictors of romantic relationship satisfaction that have been empirically demonstrated and to examine these connections within an evolutionary context. The relationship of Life History Strategy (LHS) with attachment style, attachment style with communication patterns, and communication patterns with relationship satisfaction are connections that have been explored separately by many researchers. Our goal is to explore the hypothesized causal structure among these connections and present a new hypothesis to help explain these relationships. We hypothesized that LHS would be highly predictive of relationship satisfaction, promoting the maintenance of long-term relationships and fostering high degrees of parental investment in offspring. Whereas previous theorists proposed that attachment style and communication patterns contributed to relationship satisfaction, we hypothesized that these only partially mediate the effects of LHS. Because whether they either partially or fully mediated the predicted relationship between LHS and relationship satisfaction was unclear, both alternative hypotheses were tested in this study and compared for goodness of fit to the data.

2. Life history strategy

Life History Theory describes the systematic patterns of behavior through which an organism allocates limited bioenergetic and material resources between individual survival (somatic effort) and the production of new organisms to serve as vehicles for their genes (reproductive effort). Reproductive effort is further allocated into energy directed at obtaining and retaining sexual partners (mating effort) and assisting in the survival of either the organism's own offspring or the offspring of genetic relatives (parental/nepotistic effort). Life History (r-K) Theory explains species, and members within the species, vary in their allocation of reproductive effort due to varying environmental selective pressures by ranging from extremely r-selected (maximum mating effort, minimum parental effort) to extreme K-selected (minimum mating effort, maximum parental/nepotistic effort; Mealey, 2000). Because r-selected species live in a constantly changing and unpredictable environment, they produce a vast number of offspring that are genetically diverse to fit the varying environmental conditions. They provide very limited parental care and have a very high mortality rate; examples are rabbits and oysters. Because K-selected species live in a more stable and predictable environment, they have fewer offspring that are more adapted to their particular environment. They provide extensive parental care and have a high survival rate; examples are elephants and humans (Figueredo et al., 2006).

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According to Differential-K Theory (Rushton, 1985), although humans as a species generally exhibit slow (High K) LHS when compared to most other species, there is considerable interindividual variability as well. Humans fall on a continuum which ranges from relatively slow (e.g. High K) to relatively fast (e.g. Low K) LHS. Those who have a slow LHS demonstrate qualities of high investment and commitment in various aspects of their life including their romantic relationships. They are very selective in their choice of sexual partners, provide extensive parental investment, make long-term plans, and maintain long-term relationships. These individuals are characteristically monogamous, altruistic, cautious risk-takers, long-term thinkers, adhere to social rules, cooperate, and both give and receive substantial social support. Those who have a fast LHS tend to have a high number of sexual partners in their lifetime, provide low parental investment, only plan for the short-term, and prefer short-term sexual relationships. These individuals are characteristically impulsive, promiscuous, give and receive little social support, disregard social rules, and are incautious risk-takers (Figueredo et al., 2005).

Human LHS is highly heritable ($h^2 = 0.65$; Figueredo, Vásquez, Brumbach, & Schneider, 2004) but may be influenced by environmental factors as well. Like r-selected species, individuals who live in a volatile or constantly changing environment are more likely to develop a fast LHS. Like K-selected species, individuals who live in stable and predictable environments tend to develop a slow LHS (Figueredo et al., 2006). LHS is believed to be a primary influence in reproduction, mate choice, and parental care of offspring. As such, it is an influential trait which can be selected against depending on the specific evolutionary pressures to which a lineage has been exposed.

Because high levels of biparental care are essential to the implementation of human slow LHS, we hypothesized that high levels of relationship satisfaction would promote the long-term romantic relationships required to facilitate biparental investment. Moreover, we hypothesized that secure attachment styles would help promote high levels of relationship satisfaction.

3. Attachment style

Attachment style has been described as a characteristic of LHS (Belsky, 1997). Originally discussed by Bowlby (1969), attachment behavior was presented as an evolved behavior designed to maintain proximity of the parent and child in order to promote the child's survival. Ainsworth, Blehar, Waters, and Wall (1978) elaborated on Bowlby's attachment theory and, in their classic 'Strange Situation' study, described three attachment styles they observed in infants. Since then, there have been many reconceptualizations and reorganizations of attachment behavior into either three or four categories, depending on the researcher or age group described. For this study, we used the categories described by Brennan, Clark, and Shaver (1998) who explained that attachment behavior can be categorized into being on either end of two continua: (1) *avoidance*, which is feeling discomfort in close or dependent relationships; and (2) *anxiety*, which pertains to being anxious about being abandoned. *Secure attachment* is defined as being low on both avoidance and anxiety, *avoidant attachment* is low on anxiety and high on avoidance, *anxious-ambivalent attachment* is high on anxiety and low on avoidance, and *disoriented/disorganized attachment* is high on both anxiety and avoidance.

Since the development of Attachment Theory, researchers have drawn the connection between LHS and attachment styles. Belsky (1997) has illustrated how the continuum presented in Differential-K theory is highly congruent with the descriptions and goals of the different attachment styles. Individuals with an insecure-

avoidant attachment style (similar to the avoidant, anxious-ambivalent, and disoriented/disorganized attachment styles described above) are characterized as having unstable pair bonds, several sexual partners, many children, provide limited care for their children, and invest more effort and resources in mating than in parenting (Chisholm, 1996). As mentioned above, this behavior is typically characteristic of individuals with a fast (low-K) LHS. Individuals with a secure attachment style are characteristically more likely to develop close, enduring, and emotionally rewarding relationships, be more skilled in maintaining those relationships, and because they were typically raised by highly invested parents, subsequently learn to invest more in their offspring than in mating effort. This behavior is similar to that of individuals with a slow (high-K) LHS (Belsky, 1997).

Some argue that an organism's attachment style evolved to assist in transmitting information about the current stability of the environment from the parent(s) to the offspring (Belsky, 1997). There is evidence that attachment styles are stable throughout development (Benoit & Parker, 1994; Hazan & Shaver, 1987) suggesting that preparing an offspring for their environment when they are young can be beneficial throughout their development. Parents who live in a more stable environment should foster a secure attachment style in their offspring, whereas parents who are in a less stable environment should foster an insecure attachment style. Attachment styles are not completely static and this allows them to be adaptable and changeable based on the stability or variability of the environmental conditions (Belsky, 1997). Attachment styles, along with LHS, are both partially heritable, and partially influenced by the environment suggesting lineages are able to adapt over generations (Brussoni, Jang, Livesley, & Macbeth, 2000; Crawford et al., 2007; Finkel & Matheny, 2000).

Attachment style has been linked to relationship satisfaction, and this effect might be mediated through supportive communication (Koski & Shaver, 1997). We further hypothesized that the effect of LHS upon relationship satisfaction would be at least partially mediated by secure attachment style and supportive communication.

4. Communication style

Anders and Tucker (2000) found the communication styles of undergraduate students are linked to their attachment styles: those with avoidant or anxious attachment styles, compared to those with secure attachment styles, typically seek and provide less support from their partners, are less expressive, worse at conflict resolution, and show less conversational skill.

Gottman (1994) has found evidence strongly linking communication to long-term relationship outcomes. He described four affective patterns of communication which are detrimental to a relationship and can predict relationship dissolution (referred to as the "Four Horsemen of the Apocalypse"): (1) *criticism*, which involves attacking a romantic partner's personality or character; (2) *contempt/disgust*, in which disgust is communicating being repulsed or sickened and contempt refers to forms of insult, mockery, or sarcasm about the partner; (3) *defensiveness*, which involves avoiding taking responsibility and making excuses and is considered an attempt to defend oneself against a perceived attack; and (4) *stonewalling*, which is when one refuses to respond to their romantic partner. Contempt/disgust and defensiveness are considered the worst of the four. Supportive communication, or at least absence of negative communication, has been shown to assist, if not entirely predict, the maintenance of a long-term romantic relationship. Thus, we hypothesized that supportive communication would at least partially mediate the effect of secure attachment

style and, ultimately, slow LHS, upon romantic relationship satisfaction.

5. Romantic relationship satisfaction

Shackelford and Buss (1997) proposed that marital satisfaction is “a psychological device that tracks the overall costs and benefits of a marriage” and that dissatisfaction is designed to “serve the adaptive function of motivating the individual to attempt to change the existing relationship, or seek another one that may be more propitious” (p. 10). Along with satisfaction, we believe that commitment towards one’s romantic partner should also be an indicator of the ratio of costs and benefits in the relationship.

High relationship satisfaction should encourage stable long-term relationships which will promote sustained biparental investment assisting in the development of the offspring by producing a stable rearing environment. Low relationship satisfaction, on the other hand, should encourage the romantic partners to break-up and re-pair with other romantic partners, leading to increased variability in the rearing environment. The association between relationship satisfaction and relationship length, however, is not directly supported in the literature. There are several theories, but no definite conclusion as to why this is the case (see Bercheid & Lopes, 1997). For the purposes of this paper we will assume that relationship satisfaction and length of romantic involvement are related.

6. Linking life history strategy through to relationship satisfaction

To summarize these various sequential associations: (1) slow LHS individuals will be more securely attached; (2) securely attached individuals will develop supportive communication patterns from their parents, which they will bring to other relationships in their life (i.e. romantic relationships); and (3) supportive communication among individuals in a romantic relationship may be a primary influence on the outcome of their relationship, including their relationship satisfaction. Thus, through this chain we see that the communication patterns developed by slow LHS individuals are evolutionarily the ideal trait to have in maintaining the long-term relationship structure that is most beneficial for their reproductive strategy.

7. Linking life history strategy to satisfaction

According to Figueredo et al. (2006), individuals with different life history strategies will desire different types of relationships. For example, slow LHS individuals should be more likely to desire a long-term romantic relationship; decreased mating effort indicates decreased time searching for romantic partners leading to an increased stability with ones own romantic partner and increased parental effort will be supported by a long-term relationship and long-term investment by another individual. Fast LHS individuals should be more likely to desire a short-term relationship; increased mating effort indicates increased time searching for romantic partners and less time investing in their current romantic partner, and leads to decreased time and resources for parenting.

If these predictions are supported, we would expect a greater adaptive benefit of high relationship satisfaction in slow LHS individuals rather than fast LHS individuals over the course of a relationship. High relationship satisfaction will help slow LHS individuals maintain their long-term relationships. Fast LHS individuals, on the other hand, will benefit from initially high levels of relationship satisfaction, which will help the individuals get to-

gether at the beginning for sexual contact. However, because their LHS works best when having short-term relationships, they will benefit most by having subsequent decreasing relationship satisfaction leading to relationship dissolution and finding new sexual partners. According to Life History Theory, the LHS of the individuals in the relationship should predict their subsequent relationship satisfaction both initially and over time. In this view, the relationship of communication to relationship satisfaction might be completely spurious.

8. Shared couple characteristics

Finally, we hypothesized that these various contributions to relationship satisfaction must be symmetrical between the members of each couple for the stability of long-term relationships and cooperative biparental care to be maintained. Thus, the predictors of interest are *shared* slow LHS, *shared* secure attachment style, and *shared* supportive communication. This hypothesis presupposes that asymmetrical relationships, where one partner is investing significantly more or less than another, will be inherently unstable (see Kirsner, Figueredo, & Jacobs, 2003, for the evolutionary economic theory on which this hypothesis is based). Only variance shared between romantic partners in these characteristics should be protective of long-term relationships.

9. Hypotheses

We propose to test both the causal pathways proposed in the literature as well as our new hypothesis that LHS directly influences relationship satisfaction. Also, since these are couple-level variables, we will focus the hypotheses on the couple’s shared score on these traits:

- (1) A couple’s shared life history strategy will influence their shared secure attachment style;
- (2) A couple’s shared secure attachment style will then influence their shared supportive communication;
- (3) A couple’s shared supportive communication will then influence relationship satisfaction.
- (4) A couple’s shared life history strategy will also directly influence their relationship satisfaction and will be more influential than supportive communication, as indicated by a higher path coefficient.

This last hypothesis implies that, although supportive communication and, indirectly, secure attachment style, are important contributors to long-term romantic relationship satisfaction, a slow (high-K) LHS is ultimately a more comprehensive construct that includes more content relevant to the stability of long-term relationships and will therefore explain excess variance in satisfaction not accounted for by either attachment style or communication.

10. Methods

10.1. Participants

The sample consisted of 121 undergraduate students from the University of Arizona. The respondents were primarily female (79%; 21% male), White Non-Hispanic (71%; 12% Hispanic; 8% Asian; 2% Black non-Hispanic; 8% Other Ethnicity), with their romantic partner White Non-Hispanic (78%; 11% Hispanic; 7% Asian; 0% Black non-Hispanic; 4% Other Ethnicity). The respondents’ average age was 18.9 years ($SD = 2.9$ years), with their partner at 19.5 years ($SD = 3.7$ years), and the average length of romantic involvement was 53.6 days ($SD = 79.2$ days).

10.2. Measures

For the following measures, scale scores with missing item-level data were estimated by computing the means of the non-missing item scores (Figueredo, McKnight, McKnight, & Sidani, 2000). Descriptions for each scale are provided below.

10.2.1. Demographics

This questionnaire obtained a basic description of the participants and their romantic partners, including their age, sex, ethnicity, and length of romantic involvement.

10.2.2. Relationship satisfaction

This questionnaire was composed of three questions which asked the respondent to rate their current level of satisfaction towards their romantic partner, satisfaction towards their romantic relationship, and commitment towards their romantic partner. This 3-item scale was built from a larger 11-item scale, $\alpha = 0.89$. The 3-item scale has comparable internal reliability, $\alpha = 0.84$, and in a separate sample correlated 0.84 ($p < 0.01$) with the 11-item scale, so we chose to use the 3-item scale to reduce respondent burden.

10.2.3. Mini-K

The Mini-K Short Form (Figueredo et al., 2006) consists of 20 questions measuring how fast or slow an individual is on LHS, and is based on the Arizona Life History Battery (ALHB; Figueredo, 2007a). The ALHB contains measures of *Insight, Planning, and Control, Mother/Father Relationship Quality, Family Social Contact and Support, Friends' Social Contact and Support, Adult Romantic Partner Attachment, General Altruism, and Religiosity*. The Mini-K, which contains more global items sampling all of these dimensions, may be used separately to substitute for the entire ALHB and reduce research participant response burden. (*Life history strategy-self*: $\alpha = 0.72$; *life history strategy-partner*: $\alpha = 0.79$).

10.2.4. Experiences in close relationships (ECR)

The ECR (Brennan et al., 1998) measures the four attachment styles mentioned above by measuring an individual's level on two continua: anxiety and avoidance. In the ECR, these two can be combined to get an individual's level of secure attachment which is having low scores on both. We chose to use continuous scores instead of a categorical measure because it provided a better range for individual differences, allowed for more information about each partner in the relationship, and statistically fit the structural equation modeling analyses used to test each hypothesis better. (*Secure attachment-self*: $\alpha = 0.83$; *secure attachment-partner*: $\alpha = 0.87$).

10.2.5. Supportive communication

This questionnaire asked participants to respond about the level of supportive communication displayed by their romantic partner; example items are "How many times in the past week has your current romantic partner: (1) Helped you get worries off your mind?" (*Supportive communication-self*: $\alpha = 0.80$; *supportive communication-partner*: $\alpha = 0.81$).

10.3. Procedure

Students were recruited from the University of Arizona Introductory Psychology pool of volunteer research participants. It was requested that students be at least 18 years of age and be currently involved in a heterosexual romantic relationship. Due to the number of questionnaires, data collection was divided into two assessment sessions. During the first session, participants were asked to respond about themselves, during the second they were

asked to respond about their romantic partner, and during both they were asked about their romantic relationship. The information about both partners and their relationship was collected from only one person in the relationship. Participants were given experimental credit for their Introductory Psychology class for participating.

11. Results

11.1. Data analytic strategy

We propose to test each hypothesis in a structural equation model (SEM). SEM is beneficial for these analyses because it allows us to hierarchically organize individual-level traits into a higher order factor representing the couple's shared level on that trait, provides increased stability by our predictors through the latent variables, and works well with low reliability scales (Kline, 2005). Although our sample size was relatively small for a typical SEM, the ratio of participants to the number of parameters needed to be estimated for our most complex model (12:1) is well above the minimum threshold typically recommended (5:1; Bentler, 1989). To compensate for the low sample size we will focus on those fit indices which, according to Hu and Bentler (1999), are robust under low sample sizes, such as the CFI and NFI.

11.2. Bivariate correlations

To justify the construction of couple-level latent variables representing the shared traits of romantic partners that are hypothesized to lead to relationship satisfaction, we tested the within-couple correlations for each trait. Supportive communication had the highest within-couple correlation ($r = 0.95$, $p < 0.01$) followed by secure attachment ($r = 0.51$, $p < 0.01$) and LHS ($r = 0.39$, $p < 0.01$).

11.3. Structural equation models

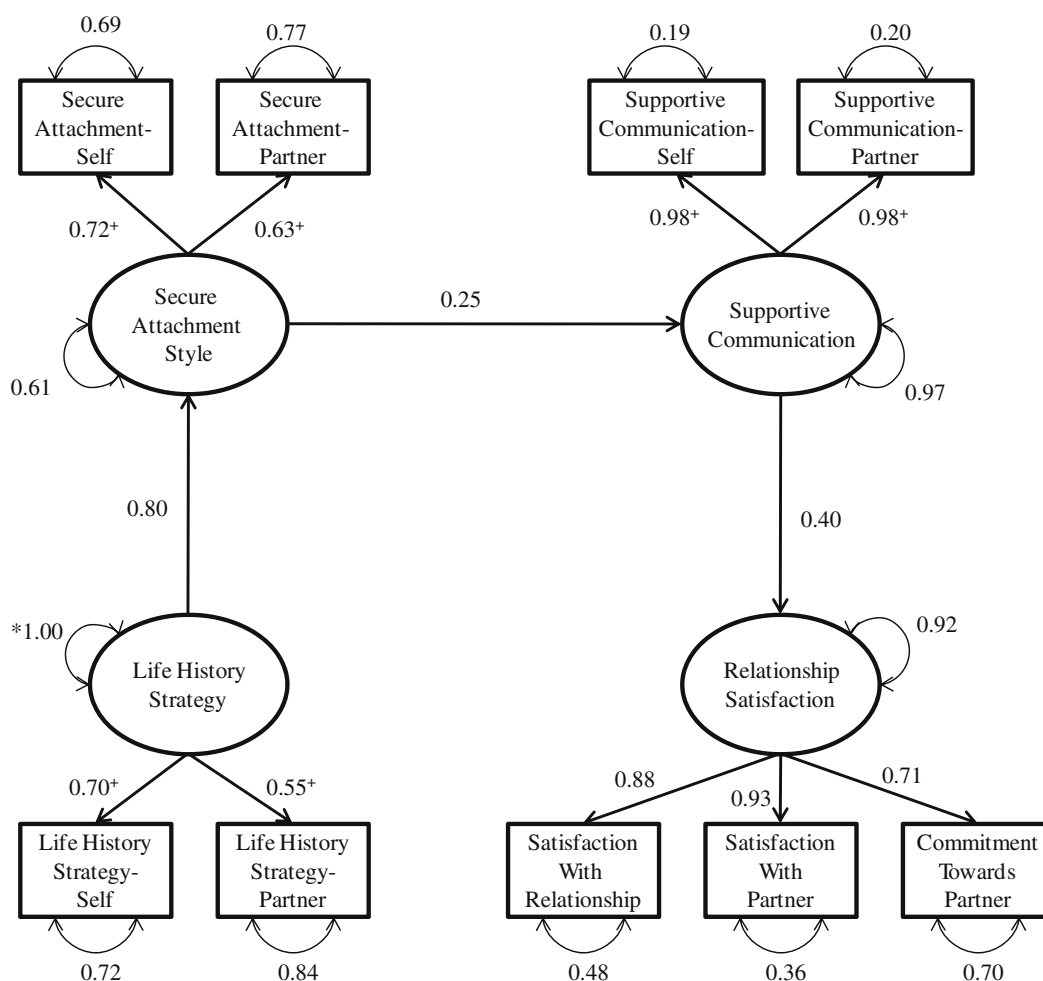
11.3.1. Model 1

To measure a couple's shared level of each trait, we constructed a latent variable for that trait and had the self and partner measures as indicators (i.e. life history strategy-self and life history strategy-partner loaded on the life history strategy latent variable). Theoretically, the influence of each partner should contribute equally to the overall shared level for the couple; therefore, the corresponding factor loadings of self and partner for each couple-level latent variable were equated.

Relationship satisfaction was also treated as a latent variable and the three questions included in the "Relationship Satisfaction" questionnaire were used as indicators. In order to properly represent the predicted relationships specified in Hypotheses 1, 2, and 3 we modeled the latent variable of the couple's shared LHS as influencing the couple's shared secure attachment style, which in turn influenced their shared supportive communication, which finally influenced relationship satisfaction (see Fig. 1). Overall, model fit was moderately acceptable ($\chi^2_{(27, n = 121)} = 81.3$, $p < 0.01$; $RMSEA = 0.129_{(0.098-0.162)}$; $CFI = 0.919$; $NFI = 0.884$) and the variance predicted in the relationship satisfaction latent variable was 16%. The chi-square was statistically significant, the RMSEA was out of acceptable range, and the fit indices bordered on acceptable.

11.3.2. Model 2

The fourth hypothesis was tested by the same statistical model, but this time an additional causal pathway was added leading from the couple's shared LHS directly to relationship satisfaction (see Fig. 2). The model fit reasonably well ($\chi^2_{(26, n = 121)} = 38.6$,



*The variance was fixed at 1.0 so as to set the scale of measurement

+ For purposes of model identification, equality constraints were imposed on each marked pair of factor loadings

Fig. 1. Structural equation model 1.

$p = 0.05$; $RMSEA = 0.063$ (0.000–0.103); $CFI = 0.981$; $NFI = 0.945$) and significantly better than the first model (χ^2 (1, $n = 121$) = 42.7, $p < 0.01$). The chi-square was just at statistical significance, the RMSEA was within range, and the relative fit indices were acceptable. The path from supportive communication to relationship satisfaction decreased from 0.40 in Model 1 to 0.24 signifying that with the additional influence of LHS, the influence of supportive communication on relationship satisfaction decreased. This path was also lower than that of LHS to relationship satisfaction (0.68) demonstrating that the influence of LHS on relationship satisfaction was more substantial than that of supportive communication. The variance predicted in relationship satisfaction rose from 16% in Model 1% to 60% in Model 2. These models showed support for each of our hypotheses.

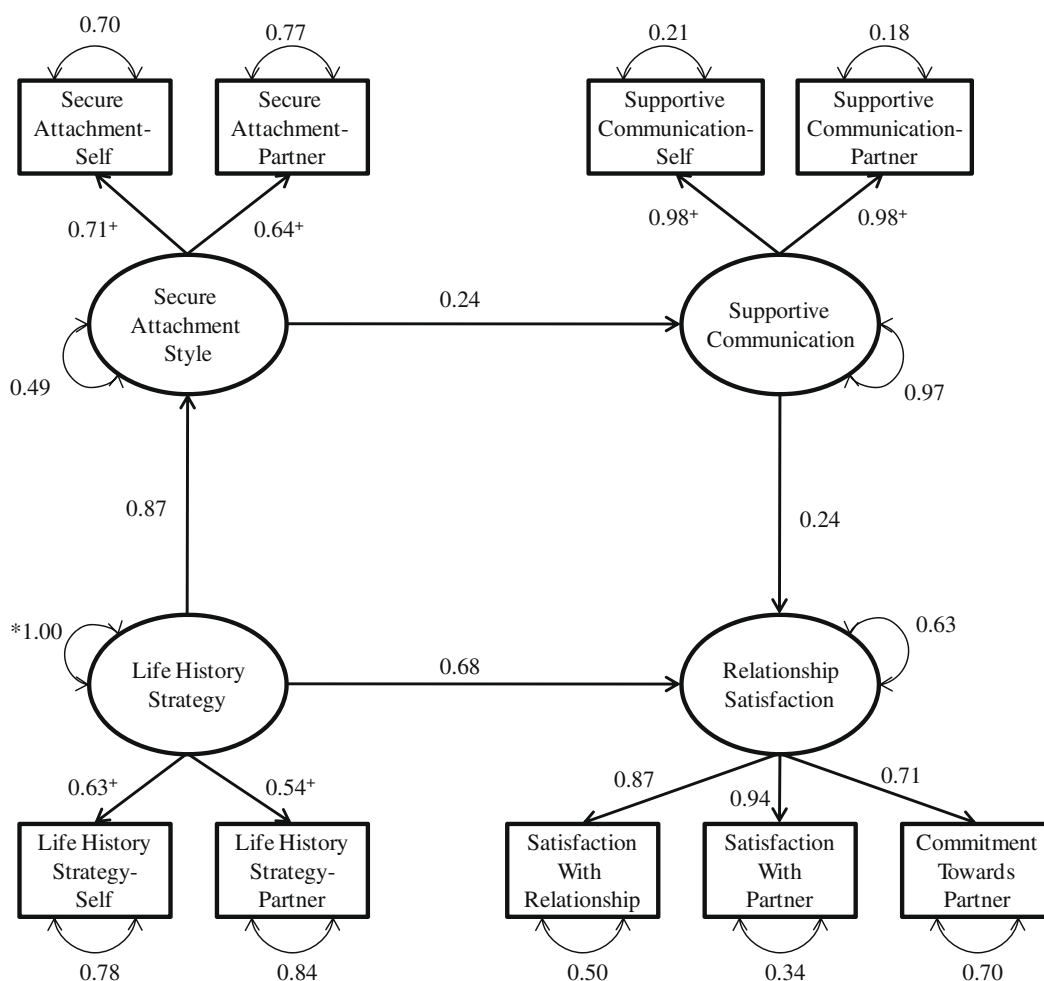
12. Discussion

Based on these analyses, we conclude that while secure attachment style and supportive communication are important predictors of romantic relationship satisfaction, this indirect causal

pathway is only one component of the more pervasive influence of a more fundamental and ultimate source of relationship satisfaction: the shared slow LHS of the romantic partners. LHS cannot only be linked in the traditional way through attachment style and communication to relationship satisfaction, but also directly because there are many more components unique to LHS not covered in this paper that influence a couple's relationship satisfaction.

This paper challenges a commonly held notion that it is primarily the communication among romantic partners that influences their relationship satisfaction by showing that LHS may be more influential. Based on these models, we propose that a person's life history traits are a strong indicator of their communication abilities, and are ultimately stronger predictors of the outcome of their romantic relationship than communication alone.

We propose that LHS exerts a strong influence on relationship satisfaction, but we did not compare Life History Theory to any other theories beyond attachment or communication. In the future, we would like to compare LHS as a predictor against the couple's level of assortative mating, given the shared variance on these



*The variance was fixed at 1.0 so as to set the scale of measurement

+ For purposes of model identification, equality constraints were imposed on each marked pair of factor loadings

Fig. 2. Structural equation model 2.

traits that we found within-couples, and their levels of emotional intelligence and executive functioning, which we believe may be strong influences in their ability to accurately read the traits of their partner and hence make informed mate choices.

This study is not without its limitations. The data collection methods were limited to the perspective of a single individual within the relationship. However, it has been shown that romantic partners are able to report the LHS of their partner to a considerable degree of inter-rater reliability (Figueredo, 2007b). In the future, we would like to cross-validate this model by using a larger sample and collecting self-report data from both partners in the relationship, simultaneously asking each of them to rate the traits of their partners so as to assess the validity of the partner reports used in this study. In addition, we would like to use multiple convergent measures of LHS to supplement the Mini-K short form used in the present study. These current data, however, strongly suggest that LHS constitutes a major influence on romantic relationship satisfaction that is not fully mediated by the other primary predictors, secure attachment and supportive communication style, that have been previously documented in the literature.

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