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# Short-Term Mating Orientation Predicts Openness to "Sugar Relationships" More Than Life History Strategy

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**Abstract**

Life history theory suggests that individuals vary in their sexual, reproductive, parental, familial, and social behavior in response to the physical and social challenges encountered during development. So-called "sugar relationships" generally involve exchanges of resources for sex and/or companionship between a younger partner and an older provider. This research aimed to explore the relationship between openness to sugar relationships and life history strategy. A total of 312 participants (192 women, 120 men) completed an extensive online questionnaire, including scales such as the Acceptance of Sugar Relationships in Young Women and Men Scale, High-K Strategy Scale, Multidimensional Measure of Sociosexual Orientation, Family Resources Scale, Childhood Unpredictability Scale, and Perceived Vulnerability to Disease Scale. The results indicate that openness to sugar relationships is primarily associated with short-term mating orientation, while the role of life history strategy appears to be weaker than previously assumed. Importantly, the SEM analysis reveals an indirect link between limited family resources in childhood and openness to sugar relationships, mediated by a fast life history strategy. This pathway suggests that early environmental constraints may shape an adaptive orientation toward immediate resource acquisition in adult relationships. No such associations were observed among men, indicating sex-specific patterns. These findings provide insight into how specific life history strategies, particularly in women, may influence attitudes toward resource-based relationships, illustrating the nuanced interactions between early experiences, life history orientation, and adult relational preferences.

**Keywords**

life history strategy, acceptance of sugar relationships, short-term mating orientation, family harshness, family unpredictability, exchanges sex for resources

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## Introduction

Engaging in sexual relationships for material gain, such as becoming a concubine, mistress, or paramour, has been documented throughout human history (Murdock, 1952; Nelson, 1993; Ringdal, 2007; Sanger, 1858; Scott, 2014). The exchange of sex for resources is predominantly considered a short-term mating strategy in evolutionary psychology (e.g., Dylewski & Prokop, 2021; McGuire & Gruter, 2003). However, the significance of exchanging sex for resources extends beyond short-term contexts to include long-term mating contexts as well. In a long-term mating scenario, providing resources (e.g., emotional support, physical protection, material assets) to a female sexual partner is an adaptive male behavior conducive to maintaining an emotionally committed long-term relationship, particularly in terms of parenting (e.g., Fajardo et al., 2022; Geary, 2015; Gettler et al., 2020; Marlowe, 2000). Similarly, women's responsiveness to men's resources in mating contexts is an adaptive preference that likely contributed to female reproductive success in the past and continues to impact intimate partner relationships (e.g., Buss & Schmitt, 1993, 2019; Conroy-Beam et al., 2019; Walter et al., 2020, 2021).

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Sugar relationships represent a contemporary form of transactional sexual encounters, where the matching of demand and supply is further facilitated by the algorithms of specialized dating sites (Birkás et al., 2020; Láng et al., 2021; Upadhyay, 2021). In these arrangements, a wealthy individual, typically a man (referred to as a "sugar daddy") or less commonly a woman ("sugar mommy"), provides material compensation, such as money or other assets, in exchange for companionship from an attractive younger, dependent partner ("sugar baby" or, less frequently, "sugar boy"; Nayar, 2017).

According to evolutionary psychology literature (Buss & Schmitt, 1993, 2019; Dylewski & Prokop, 2021; McGuire & Gruter, 2003; Walter et al., 2020, 2021), the association between male-provided resources and female sexual availability may confer adaptive advantages in both short-term and long-term mating contexts. Therefore, it is necessary to clarify whether sugar relationships are better considered part of a short-term or a long-term mating strategy. The phenomenon of sugar relationships organized through online platforms, or its Eastern equivalent, compensated dating (Chu, 2018), remains relatively new (Wade, 2009). Consequently, it is not entirely clear whether they can be regarded as long-term or short-term mating strategies. While some studies suggest a correlation between openness to sugar relationships and unrestricted sociosexuality (Birkás et al., 2020; Láng et al., 2021; Meskó et al., 2024), Chu (2024) contends that compensated dating may evolve into long-term relationships. In light of these previous contradictory findings, it cannot be concluded whether openness to sugar relationships is part of a short-term or long-term mating strategy. Therefore, this study aims to test this question.

Life history theory (LHT) serves as a framework for understanding individual diversity in sexual, reproductive, parental, familial, and social behaviors across lifespans (see Figueredo et al., 2006; also see Del Giudice et al., 2016 for review). LHT predicts adaptive variations in how organisms allocate limited time and resources toward growth and reproduction. There are two main strategies detailed: a slow life history (LH), characterized by delayed sexual development and reproduction with an investment in relatively fewer offspring, and a fast LH, characterized by earlier sexual maturity and greater offspring production with less investment per offspring. Each strategy provides a way for an organism to extract value from its environment based on physical and social challenges encountered.

While LHT provides a useful framework for understanding reproductive strategies, mating orientation—particularly short-term mating orientation (STMO)—has also been identified as a key factor in shaping individual differences in sociosexual behaviors. Sociosexuality, which includes openness to casual sex and transactional relationships, is strongly associated with short-term mating strategies (Jackson & Kirkpatrick, 2007; Simpson et al., 2012). Given that sugar relationships involve a structured exchange of sex and resources, they may be better understood in the context of mating orientation rather than broader LH adaptations. Therefore, it is crucial to examine whether openness to sugar relationships is primarily influenced by LH strategy or by short-term mating motives.

In stable environments (e.g., high socioeconomic status, low mortality rate), delayed and restricted reproduction channels resources into fewer offspring, whereas, in unpredictable environments, accelerated reproduction mitigates the potential risk of overinvestment in a single child.

While some recent studies question the applicability of LHT to human trait variation (e.g., Nettle & Frankenhuis, 2019; Zietsch & Sidari, 2020), it remains valuable for studying psychosocial developmental plasticity, particularly in disadvantaged environments (Kuzawa & Bragg, 2012). Previous studies have shown that a low socioeconomic status (low family income, low level of education, etc.) in childhood is associated with higher levels of impulsivity, elevated risk taking, unrestricted sexuality, and poorer social skills (Belsky et al., 2010; Brumbach et al., 2009; Cabeza de Baca et al., 2016; Griskevicius et al., 2011a; Nettle, 2010). Socio-emotional development is also shaped by childhood conditions, such as the quality of family functioning (e.g., communication in the family, parental support) and parental care (Belsky et al., 2012; Ellis, 2013). More adverse circumstances (e.g., absence of a father, higher levels of conflict in the family) generate more hedonistic, opportunistic, hostile, and antagonistic interpersonal styles and impair social and emotional intelligence (Brumbach et al., 2009; Cabeza de Baca et al., 2016; Hurst & Kavanagh, 2017; Jonason et al., 2016). These traits confer advantages in harsh, unpredictable environments by aiding individuals to competitively capitalize on limited resources, suggesting that, in relatively unpredictable futures, investing effort into immediate rewards may offer a more successful survival strategy than gradual, long-term investments (Ellis & Del Giudice, 2019; Pepper & Nettle, 2017).

According to the LHT (Ellis et al., 2009; Kaplan & Gangestad, 2005), traits associated with transactional sexual relationships are indicators of a faster LH strategy (see Csathó & Birkás, 2018). LH strategies involve resource allocation patterns configured to adjust to local conditions and optimize adaptive behaviors such as mating or parental investment (Bjorklund & Ellis, 2014; Ellis et al., 2009; Kaplan & Gangestad, 2005). These resource expenditure sequences may be positioned on a dimension of slow to fast strategies (Del Giudice et al., 2016). Slow LH strategies are characterized by the ability to delay gratification, future/long-term focused behavioral strategies, and better quality of parental care (i.e., larger investment of time and effort in each offspring). By contrast, individuals with faster LH strategies possess a more present/short-term oriented attitude including opportunistic, impulsive, and self-beneficial behaviors, higher frequency of mating at a younger age, and little investment in social relationships or offspring (Ellis et al., 2009; Griskevicius et al., 2011b; Nettle, 2010). These findings

support the idea that mate preferences are influenced by environmental factors and that individuals may prioritize traits that maximize survival and stability based on context.

Little et al. (2007) found that human preferences for facial masculinity change depending on relationship type and environmental conditions. Women tend to prefer more masculine male faces in short-term relationships, especially when resources are scarce, reflecting a potential preference for high-quality genetic traits in uncertain environments. For long-term relationships, however, both men and women preferred faces that indicated lower masculinity (for men) or femininity (for women) under harsh environmental conditions. This aligns with a strategy favoring partners who are more likely to invest in a committed relationship when resources are limited. Conversely, in safer environments, there was less emphasis on such investment qualities, allowing for greater flexibility in facial masculinity preferences across relationship types.

Traits associated with short-term oriented behaviors are also related to certain elements of faster LH strategies (McFarlane et al., 2005; Young et al., 2017). Such traits have also been linked to manipulative and short-term mating behaviors (Jonason et al., 2019). For example, impulsivity, openness to experiences (e.g., sensation seeking, dominance), and some facets of extraversion were found to be associated with increased instability in romantic relationships, unrestricted sociosexuality, promiscuity, and self-beneficial behaviors such as exploitativeness and manipulation (Del Giudice, 2012, 2014). Such present-focused behavioral strategies are more beneficial for individuals in harsh and unpredictable (i.e., less stable) environments, since they enable them to maximize immediate benefits. Accordingly, personal and behavioral characteristics associated with transactional sexual relationships may be beneficial or adaptive under certain circumstances.

Based on the prior literature presented in the theoretical introduction, openness to sugar relationships is likely associated with a fast LH strategy and a STMO (Birkás et al., 2020). Since LH strategy is typically influenced by adverse early-life experiences, family harshness and family unpredictability are also expected to correlate with a fast LH strategy (Del Giudice, 2014). Finally, as previous finding (Meskó et al., 2024) suggests that pathogen exposure is positively associated with openness to sugar relationships, perceived vulnerability to disease is likewise likely to be associated with openness to sugar relationships.

## Current Study

The aim of this study is to explore the relationship between openness to sugar relationships and LH strategies. Building upon previous findings by Edlund and colleagues (2023), who found that one group engaged in sex work adopt a fast LH strategy compared to the non-sex worker control group, we hypothesize that LH events also influence openness to sugar relationships.

The scientific investigation of sugar relationships primarily involves studying individuals engaged in such relationships (e.g., Gunnarsson & Strid, 2022; Scull, 2022). However, Birkás and colleagues (2020) recently suggested that if "access to female sexuality in exchange for male resources" is an adaptive trait of human mate choice, then there are individual differences in attitudes toward sugar relationships. Individuals who are more open to sugar relationships differ in various psychological traits from those who are less open to participating in such relationships (Ipolyi et al., 2021).

Since sugar relationships are based on an arrangement where the older party provides resources and the younger party provides companionship, researchers have developed scales to measure from both perspectives. We chose the version intended for younger individuals, the Acceptance of Sugar Relationships in Young Women and Men Scale (ASR-YWMS) (Birkás et al., 2020), over the version intended for older individuals (Láng et al., 2021).

We measured LH using a self-report measure, the High-K Strategy Scale (HKSS; Giosan, 2006). Overall, we predicted that individuals who have a negative attitude toward sugar relationships (as reflected by low scores on the ASR-YWMS) would report having a slower LH compared to those who are more open to participating in sugar relationships (as reflected by high scores on ASR-YWMS).

We also considered childhood conditions using the indicators of childhood conditions (family resources and family unpredictability; Griskevicius et al., 2011a, 2011b). Environmental harshness and childhood experiences have been shown to predict LH strategies in adulthood, potentially influencing mating behaviors (Kaighobadi et al., 2021). The acquisition of consistent information about predictability and harshness, or their absence, may be encoded through adaptive heuristics, particularly receptive to childhood environmental feedback. We anticipate a positive correlation between openness to sugar relationships and the levels of unpredictability and harshness experienced in childhood.

We assessed sociosexuality using the Multidimensional Measure of Sociosexual Orientation (MMSO; Jackson & Kirkpatrick, 2007). For the measurement of sociosexuality, we used the MMSO because it assesses interest in short-term and long-term relationships separately. This allowed us to examine whether individuals who are more open to sugar relationships are not only more interested in casual sex than those who are less open to such encounters, but also whether they are relatively less interested in long-term committed relationships. While the former has been extensively studied (Birkás et al., 2020; Láng et al., 2021; Meskó et al., 2024), the latter has not been well documented. We also expected that individuals who are more open to sugar relationships would exhibit higher levels of sexual promiscuity (such as unrestricted sociosexuality), compared to those who are less open to sugar relationships (Whyte et al., 2019).

We assessed self-perceived sensitivity toward infectious diseases using the Perceived Vulnerability to Disease Scale

(PVDS; Duncan et al., 2009). In a recent study on ASR, Meskó and colleagues (2024) found that openness to sugar relationships as sexual companionship providers (ASR-YWMS) was positively associated with the prevalence of pathogens, as reported by individuals based on their personal pathogen history. Although the health status of the nearly 70,000 survey participants was highly diverse, with respondents from 87 WEIRD and non-WEIRD countries, we expect that in our study, perceived vulnerability to disease will be positively correlated with openness to sugar relationships among Hungarian participants with advanced health status.

We hypothesized that family resources and family unpredictability are positively associated with a slow LH strategy. Furthermore, a slow LH strategy is negatively associated with a STMO. Additionally, a slow LH strategy is negatively associated with openness to sugar relationships, while a STMO is positively associated with openness to sugar relationships. However, given prior findings on the role of sociosexuality in shaping mating behaviors, we also considered the possibility that STMO would be a particularly strong predictor of openness to sugar relationships, potentially playing a more significant role than LH strategy itself.

Given that men and women typically pursue different motives in relationships, with men typically preferring attractive, young partners and women seeking older partners with good financial prospects (Walter et al., 2020), the dynamics of sugar relationships resemble a fundamental aspect of human mating contexts.

## Methods

### Participants and Procedure

Out of 345 participants who gave their consent to participate in the survey, 312 individuals passed the attention check, and their data were thus included in further analyses. Based on their sex at birth, 120 participants identified themselves as male (38.5%) and 192 identified themselves as female (61.5%). Ages ranged from 18 to 50 years ($M = 22.83$, $SD = 4.91$).

To assess sexual orientation, we used the Kinsey scale, supplemented with the "asexual" response option. The distribution of sexual orientation was as follows: asexual (not at all or not really interested in sex): 3 (1.0%); exclusively heterosexual: 252 (80.8%); predominantly heterosexual, only occasionally homosexual: 42 (13.5%); predominantly heterosexual, more often than occasionally homosexual: 2 (0.6%); equally heterosexual and homosexual: 4 (1.3%); predominantly homosexual, only occasionally heterosexual: 4 (1.3%); and exclusively homosexual: 5 (1.6%).

Participants were asked to indicate the total number of sexual partners on a 9-point scale, with the following responses: 0: 60 (19.2%), 1: 69 (22.1%), 2: 29 (9.3%), 3: 34 (10.9%), 4: 19 (6.1%), 5–6: 35 (11.2%), 7–9: 22 (7.1%), 10–19: 24 (7.7%), and 20 or more: 20 (6.4%). Of the participants, 263 (84.3%) reported that they were university students and 49 (15.7%) reported that they were not.

The distribution of recorded residential location was as follows: small village: 33 (10.6%), large village: 23 (7.4%), medium-sized village/small town: 67 (21.5%), county seat city/large town: 119 (38.1%), and capital city and its surroundings: 70 (22.4%). According to the reported relationship statuses, 135 (43.3%) participants were single without any relationships, 20 (6.4%) were single and had casual sexual relationships (or flings), 5 (1.6%) were involved in a committed relationship but had casual sexual encounters with others, 82 (26.3%) were involved in a committed relationship but not in a cohabitation relationship or married, and 70 (22.4%) were in a cohabitation relationship or married.

The online survey was conducted using Qualtrics. The survey link was sent to the university student mailing list of the authors and also posted to the university's social media sites. The research plan was approved by the Hungarian United Ethical Review Committee for Research in Psychology, under reg. no. EPKEB 2020/02. The ethics committee followed all the relevant international ethical guidelines and regulations for research involving human participants in accordance with the Declaration of Helsinki (Rickham, 1964) and the Ethical Principles of Psychologists and Code of Conduct published by the American Psychological Association (APA, 2002). All participants gave informed consent to participate in the survey.

### Transparency and Openness

The study followed the Journal Article Reporting Standards (Kazak, 2018), detailing sample size determination, data exclusions, manipulations, and all procedures. Access to all data, analysis code, and research material is available at https://osf.io/vnbcx/?view_only = d281cdfa534f4f4995e6481d40387601. Data was analyzed using *R*, version 4.0.0 (R Core Team, 2020). For a comprehensive analytical methodology, please refer to the section Analytic Plan. This study's design and its analysis were not pre-registered.

### Measures

The first author translated all questionnaire items and instructions into Hungarian, except for ASR, which was originally developed in Hungarian. The translated versions underwent verification for consistency using the back-translation method (Brislin, 1970, 1983; Hambleton & De Jong, 2003; Muñiz et al., 2013). This involved retranslating the items and instructions back into English by a translator independent from the study. Any minor discrepancies identified during the back-translation process were then addressed by the two translators.

*ASR-YWMS.* The ASR-YWMS (Birkás et al., 2020) is a five-item scale assessing one's willingness to engage in a sugar relationship as the younger partner (sugar baby/boy),

offering sexual companionship to an older partner in exchange for material compensation (gifts and/or money). The original ASR was developed in Hungarian. Examples of items include the following: "If it would benefit my career, I would think about engaging in a sugar relationship" and "I would seriously consider engaging in a sugar relationship if I thought it would help me have a better financial situation." The participants rated each item on a 7-point scale ranging from absolutely disagree (1) to absolutely agree (7). Higher scores indicate an inclination to participate in sugar relationships. In the present study, the McDonald's ω for the ASR-YWMS was 0.931.

*MMSO.* Two attitudinal aspects of sociosexual orientation were measured using items from the MMSO (Jackson & Kirkpatrick, 2007; $\alpha = 0.643$): (1) STMO (10 items, e.g., "I can easily imagine myself being comfortable and enjoying 'casual' sex with different partners") and (2) Long-term Mating Orientation (LTMO; seven items, e.g., "I am interested in maintaining a long-term relationship with someone special"; anchors: 1 = strongly disagree, 7 = strongly agree). The confirmatory factor analysis indicated an acceptable fit for the Hungarian adaptation of the MMSO ($\chi^2$/df = 2.345, CFI = 0.997, TLI = 0.993, RMSEA = 0.069, SRMR = 0.082). Higher average scores on both measures indicate greater preference. McDonald's ω values for the two scales were STMO: 0.939 and LTMO: 0.911.

*HKSS.* The HKSS (Giosan, 2006) is a 26-item questionnaire assessing a variety of High-K (slow) reproductive strategy indicators. The confirmatory factor analysis indicated an acceptable fit for the Hungarian adaptation of the HKSS ($\chi^2$/df = 1.657, CFI = 0.950, TLI = 0.951, RMSEA = 0.046, SRMR = 0.072). The HKSS [supposedly] assesses LH qualities such as health and attractiveness (e.g., "I don't have major medical problems," "I am in good physical shape"), upward social mobility (e.g., "My training and experience are likely to bring me opportunities for promotion and increased income in the future"), social capital (e.g., "If something bad happened to me, I'd have many friends ready to help me"), and risk avoidance (e.g., "I live in a comfortable and secure home"; anchors: 1 = strongly disagree, 5 = strongly agree). Higher average scores indicate a slower LH strategy. McDonald's ω for the HKSS in the present study was 0.840, indicating good internal consistency.

*Harshness in Childhood.* The childhood harshness experience was measured using the Family Resources Scale (FRS; Griskevicius et al., 2011a). The confirmatory factor analysis indicated an acceptable fit for the Hungarian adaptation of the FRS ($\chi^2$/df = 1.258, CFI = 0.999, TLI = 0.994, RMSEA = 0.029, SRMR = 0.034). This self-report instrument measures retrospective information about the respondents' childhood family resources through eight items. Respondents evaluated the support provided by their family during their upbringing, including aspects such as spending money, food, clothing, and time and attention. Each item was rated on a 5-point scale from "inadequate support" (1) to "exceptional support" (5). Lower scores indicate a tougher childhood environment. The FRS demonstrated good internal consistency in the present study with a McDonald's ω of 0.892.

*Unpredictability in Childhood.* Unpredictability in childhood was assessed using the Childhood Unpredictability Scale (CUS; Griskevicius et al., 2011b). This self-report instrument measures retrospective information about the predictability of respondent's childhood family environment through three items. Respondents indicated their level of agreement with statements such as "People often moved in and out of my house on a pretty random basis" and "Things were often chaotic in my house." Each item was rated on a 7-point scale from "disagree" (1) to "agree" (7). Higher scores indicate a less predictable childhood environment experienced by the individual. McDonald's ω for the CUS in the present study was 0.735.

*PVDS.* The PVDS (Duncan et al., 2009) is a 15-item self-report questionnaire designed to measures chronic concerns about susceptibility to infectious disease transmission. The confirmatory factor analysis indicated an acceptable fit for the Hungarian adaptation of the PVDS ($\chi^2$/df = 3.119, CFI = 0.982, TLI = 0.971, RMSEA = 0.085, SRMR = 0.074). Factor analyses, as reported by Díaz et al. (2016), identified two dimensions: perceived infectability (e.g., "I am more likely than the people around me to catch an infectious disease") and germ aversion (e.g., "I dislike wearing used clothes because you do not know what the last person who wore it was like"). Participants rated each item on a 7-point scale, ranging from "strongly disagree" to "strongly agree." Higher average scores indicate greater perceived vulnerability. In the present study, McDonald's ω coefficient for the two scales was as follows: perceived infectability: 0.888 and germ aversion: 0.745.

## Analytic Plan

First, we assessed the distribution of each variable to see if there was a normal distribution, with skewness and kurtosis falling between −2 and 2. Only one variable, LTMO, deviated from this. To address this, we used a Box-Cox transformation ($\lambda = 3$) to achieve normal distribution.

Then, we used general linear modeling (GLM) to test which measured variables were significant predictors of the ASR scores. The independent predictors in the model were HKSS, family resources, unpredictability, STMO and LTMO, and PVD infectability and germ aversion. Multicollinearity was not a concern in the model (VIF values were below 4), and the normality of the residuals was not violated (Kolmogorov-Smirnov $p = .166$), which was confirmed through visual inspection of the Q-Q plot. Statistical results

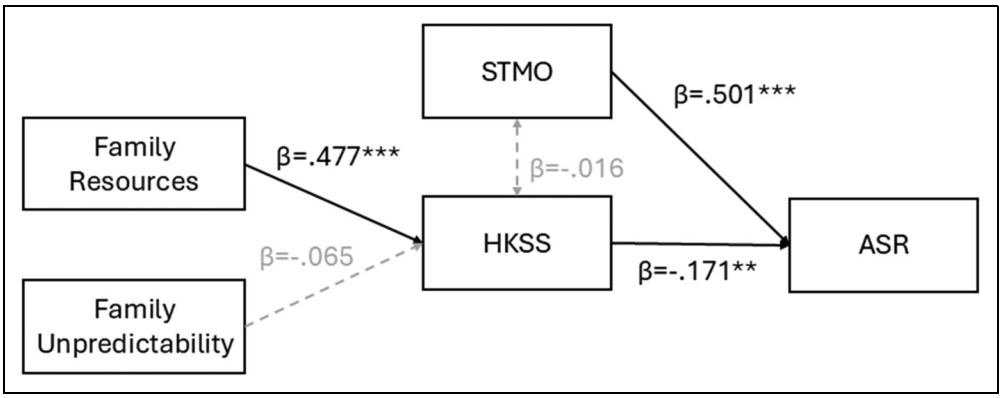


**Figure 1.** The model we tested on the potential contributors of ASR based on the GLMs. All pathways are displayed. Statistically significant pathways are highlighted in black (*$p < .05$, **$p < .01$, ***$p < .001$). All reported estimates are standardized point estimates. Gray lines indicate nonsignificant pathways.
*Note.* ASR = Acceptance of Sugar Relationships in Young Women and Men Scale; HKSS = High-K Strategy Scale; Family Resources = Family Resources Scale; Family Unpredictability = Childhood Unpredictability Scale; STMO = short-term mating orientation.

have been presented in tables for clarity and ease of interpretation.

Next, given that we have specific predictions regarding the relationships between variables, we also utilized a more comprehensive method, structural equation modeling (SEM)[1] which we based on the results of the previous GLM analyses. Achieved ASR scores were entered into the model as outcome variables, while HKSS, STMO, and family resources and unpredictability were included as predictor variables (see Figure 1 for the proposed model). For SEM analysis, we used the diagonal weighted least squares estimator. To assess model fit, we used the relative chi-square ($\chi^2$/df), the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual index (SRMR). The cutoffs for good model fit were a relative chi-square of 3 or less, CFI and TFI values of 0.95 or greater, and RMSEA and SRMR values of 0.08 or less. The SEM model was tested using JASP statistical software version 0.16.3 for Windows, using the lavaan package for R.

To examine whether sex plays a role in predicting openness to sugar relationships, we included sex as an independent variable in the SEM model.

## Results

First, we sought to test which variables emerge as independent predictors of acceptance of engaging in transactional relationships. Table 1 presents the results of the GLM analyses, illustrating the relationships between ASR and its predictors (STMO, HKSS, childhood unpredictability). The model confirms that STMO is the strongest predictor, with HKSS showing a weaker, though still significant, effect. The GLM analysis showed a significant model fit, explaining 26.7% of the total variance. Table 1 shows the detailed statistical results. Two significant independent predictors emerged from the model. HKSS had a weak negative effect, while STMO had a strong positive effect on the ASRS score. This suggests that individuals with a stronger STMO are more open to sugar relationships, whereas those with a slower LH strategy tend to be less accepting of such arrangements. However, the effect size for STMO was notably larger than for HKSS, reinforcing the dominant role of sociosexuality over LH strategy. These findings align with prior research on mating strategies, suggesting that openness to transactional relationships is more closely linked to individual differences in sociosexuality than to childhood environmental factors. In conclusion, we confirmed that early experiences of unpredictability and STMO predict a greater acceptance of engaging in transactional relationships.

The test yielded a good model fit ($\chi^2$/df = 1.04, $p = .384$, CFI = 0.999, TLI = 0.997, RMSEA = 0.028, 90% CI = [0.000–0.092], SRMR = 0.012). HKSS ($R^2 = 0.264$) was positively associated with family resources, while the association with family unpredictability was nonsignificant. ASR ($R^2 = 0.282$) was positively associated with STMO and negatively associated with HKSS as expected based on the GLM results. These results provide further support for the idea that STMO is the primary driver of openness to sugar relationships. While LH strategy plays a role, its effect is relatively weak, particularly in comparison to STMO. Figure 1 visually depicts the strength of these associations, highlighting the robust link between STMO and ASR. Additionally, Table S3 in the Supplemental Material provides full statistical details, including the exact point estimates, standard errors (SE), standardized coefficients (ß), *z*-values, and *p*-values. Readers should note that the association between STMO and HKSS was nonsignificant, suggesting that these two constructs operate independently in predicting openness to transactional relationships.

The association between STMO and HKSS was nonsignificant. For the exact ß values, see Figure 1, and for all statistical values including the point estimates, standard errors

**Table 1.** Results of the GLM Analysis; the Presented Values are Standardized Estimates ($\beta$).

| | df | *F* | *p* | $\beta$ |
|---|---|---|---|---|
| Model | 15, 281 | 7.8301 | < .001 | |
| *HKSS* | *1, 281* | *6.2209* | *.013* | *−0.1563* |
| Family resources | 1, 281 | 0.7186 | .397 | 0.0604 |
| Family unpredictability | 1, 281 | $2.09\times10^{-4}$ | .988 | $-8.91\times10^{-4}$ |
| *STMO* | *1, 281* | *75.1952* | *<.001* | *0.5061* |
| LTMO | 1, 281 | 0.8076 | .370 | −0.0510 |
| PVD infectability | 1, 281 | 0.0531 | .818 | 0.0141 |
| PVD germ aversion | 1, 281 | 0.0514 | .821 | 0.0125 |
| Sex | 1, 281 | 3.8546 | .051 | 0.2248 |
| HKSS * sex | 1, 281 | 0.1318 | .717 | −0.0455 |
| STMO * sex | 1, 281 | 0.8181 | .367 | 0.1056 |
| Family resources * sex | 1, 281 | 0.8081 | .370 | −0.1281 |
| Family unpredictability * sex | 1, 281 | 0.3111 | .578 | 0.0688 |
| LTMO * sex | 1, 281 | 0.0732 | .787 | −0.0307 |
| PVD infectability * sex | 1, 281 | 0.2700 | .604 | −0.0637 |
| PVD germ aversion * sex | 1, 281 | 0.5444 | .461 | 0.0814 |

Italic values indicate $p < .05$.

*Note.* ASR = Acceptance of Sugar Relationships in Young Women and Men Scale; HKSS = High-K Strategy Scale; Family Resources = Family Resources Scale; Family Unpredictability = Childhood Unpredictability Scale; STMO = short-term mating orientation; LTMO = long-term mating orientation; PVD infectability = perceived vulnerability to disease scale perceived infectability; PVD germ aversion = perceived vulnerability to disease scale germ aversion.

(SE), ß values, *z*-values, and *p*-values, see Table S3 in the Supplemental Material.

Contrary to our initial expectations, STMO emerged as the strongest predictor of ASR, with a substantially greater effect than LH strategy (HKSS). This pattern was consistently observed across both GLM and SEM analyses, indicating that openness to sugar relationships is more strongly tied to short-term mating motives than to broader LH strategies. These findings suggest that openness to transactional relationships is primarily a function of sociosexuality, rather than a direct consequence of childhood environmental conditions or broader reproductive strategies. While early environmental unpredictability may contribute to some extent, its effects are mediated through individual differences in mating orientation. Future research should explore whether additional psychosocial variables, such as attitudes toward casual sex or relationship commitment, further explain variation in ASR.

To examine the potential effect of sex on ASR, we included sex as an independent variable in the SEM model. However, the path from sex to ASR was not significant ($\beta = -0.054$, $p = .362$), indicating that openness to sugar relationships was not directly predicted by participant sex. When sex was included as an independent variable in the SEM model, it did not emerge as a significant predictor of ASR ($\beta = -0.054$, $p = .362$). This suggests that greater openness to sugar relationships is not systematically higher in one sex over the other when controlling for other predictors.

## Discussion

Our study examined the relationship between LH strategy and attitudes toward engaging in resource-based sexual exchanges with older, wealthier individuals. Consistent with our hypotheses, SEM analysis reveals that openness to sugar relationships is associated with a fast LH strategy and STMO. Although descriptive patterns suggested potential sex differences, our statistical analyses did not confirm a significant interaction between sex and these predictors. Specifically, openness to sugar relationships (ASR) in women correlates positively with STMO and fast LH strategy (indicated by low HKSS scores) and negatively with LMTO scores. For men, ASR was associated only with STMO, suggesting divergent relational patterns across sexes.

The SEM model clarifies that, although no direct association emerged between harsh childhood environments and openness to sugar relationships, LH strategy may act as a mediator between these factors. Women reporting lower family resources during childhood tend to exhibit a faster LH strategy, which is subsequently linked to greater openness to sugar relationships. This mediated pathway highlights a nuanced connection from early environmental conditions to adult relational preferences, supporting the LHT perspective that individuals raised in harsh environments may prioritize immediate rewards as an adaptive survival strategy (Ellis & Del Giudice, 2019).

Our findings indicate that STMO is a far more substantial predictor of ASR than LH strategy (HKSS). While we initially hypothesized that LH events would significantly shape openness to sugar relationships, our results suggest that attitudes toward these relationships are more closely linked to sociosexuality than to broader LH strategies. This finding aligns with prior research emphasizing the role of mating orientation in shaping partner preferences and sexual decision-making. These results challenge the assumption that openness to sugar relationships primarily reflects a fast LH strategy, instead highlighting the dominant influence of short-term mating motives.

Our findings align with previous research indicating that stressful childhood conditions can increase the likelihood of short-term mating strategies (Salmon et al., 2016). Harsh, unpredictable environments are often characteristic of lower socioeconomic backgrounds, where job instability, parental stress, and frequent household changes create greater unpredictability (Belsky, 2007). Exposure to these conditions may predispose individuals to emphasize immediate resource gains over long-term investments, in line with a fast LH strategy (Griskevicius et al., 2011a).

Although descriptive trends suggested potential sex differences in how LH strategy relates to ASR, our statistical models did not confirm significant interaction effects. Thus, while women's reproductive investment might make female sexual availability a valuable resource within the mating market (Pawłowski & Dunbar, 1999; Trivers, 1972) and men's ASR scores were linked only to STMO, these patterns should be interpreted with caution as the differences were not statistically robust.

Women's reproductive investment tends to make female sexual availability a valuable resource within the mating market (Pawłowski & Dunbar, 1999; Trivers, 1972). Consequently, women with a fast LH strategy may be more inclined to engage in exchanges where resource acquisition is linked to sexual availability, consistent with predictions from sexual strategies theory (Buss & Schmitt, 1993, 2019). For men, ASR may represent an opportunity for increased short-term mating encounters rather than resource acquisition, explaining the limited association with LH strategies.

We acknowledge, however, that our measures of environmental harshness and unpredictability do not precisely align with the definitions originally established by Ellis et al. (2009). While Ellis and colleagues conceptualized harshness as objective mortality and morbidity rates, our scales assessed family support and housing stability. These distinctions may impact the interpretation of our findings, and we address this limitation in detail in the Limitations section.

Moreover, methodological considerations may have influenced our findings. Previous studies on ASR, carried out by Meskó and colleagues (2024), typically restricted the ASR-YWMS survey to younger males (aged 18–28 years) due to their age. This assumption may have unnecessarily restricted and influenced previous research. In addition, young men completing the ASR-YWMS may have anticipated their future selves, possibly decades older, engaging in transactions where they would pay for sex rather someone who is paid for sex. In other words, there is the possibility of a methodological error where young men may have misunderstood the role of "sugar boy" accurately.

In conclusion, our findings suggest that openness to sugar relationships is associated with both STMO and a fast LH strategy. Although descriptively women appeared to show stronger associations with these predictors, our statistical models did not confirm significant sex differences. Therefore, while the theoretical perspectives on sex differences in mating strategies remain relevant, future research should further investigate these patterns with more refined methods. We speculate that this association may explain the preference for short-term mating goals among women who report a faster LH strategy. These findings support previous reports (Birkás et al., 2020; Láng et al., 2021; Meskó et al., 2024) that openness to sex for resources, specifically sugar relationships, may be part of a short-term mating strategy possibly shaped by experiences from the childhood environment. Birkás et al. (2020) identified a positive correlation between young participants' (aged 18–28) favorable perception of sugar relationships (ASR-YWMS) and characteristics indicative of a manipulative, game-playing love style (Ludus), self-centered sexual motivation, an unrestricted sociosexual orientation, and socially aversive personality traits encompassing Machiavellianism and subclinical psychopathy (both constituents of the Dark Triad), along with borderline personality organization. These traits are advantageous in harsh, unpredictable environments by enabling individuals to competitively capitalize on limited resources. In such environments, where the future is relatively unpredictable, investing effort into immediate rewards may be a more successful survival strategy than long-term investments that pay off more gradually (Ellis & Del Giudice, 2019; Pepper & Nettle, 2017).

## Limitations

Several limitations of this study should be noted. First, our reliance on self-report measures assumes that respondents have conscious access to their subjective childhood, social, and sexual experiences, which may not be accurate for all individuals. Second, self-report data are potentially susceptible to social desirability biases: respondents may underreport socially undesirable experiences (e.g., lack of family support or unmet needs) and overreport socially desirable ones (e.g., a positive family environment). Moreover, participants may be inclined to present themselves in alignment with social stereotypes. Third, as one anonymous reviewer pointed out, the study has methodological limitations, particularly in operationalizing the constructs of harshness and unpredictability. Ellis et al. (2009) conceptualize harshness as the objective level of environmental mortality and morbidity, yet studies often operationalize harshness inconsistently, using variables like socioeconomic status or subjective perceptions of mortality risk. In this study, the "Harshness in Childhood" scale measures material and emotional family support, which does not fully align with Ellis et al.'s (2009) definition. Similarly, for unpredictability, Ellis et al. define it as variation in mortality and morbidity. In contrast, the "Unpredictability in Childhood" scale in this study captures the frequency of childhood relocations, which may not fully capture the intended conceptual framework. Our analyses did not reveal significant interaction effects between sex and the predictors of ASR, suggesting that sex differences in these

associations should be interpreted with caution. Future studies should explore these potential differences using larger samples and alternative statistical approaches.

## Conclusions

This research highlights the relationship between openness to sugar relationships, a specific type of encounter involving exchanges sex for resources, and LH strategies. Findings indicated that a faster LH strategy may be associated with openness to sugar relationships, but this association was observed only in women, not men. This may also mean that young women with adverse childhood experiences are vulnerable to short-term relationship opportunities with immediate financial rewards.

### Author Contributions

Conceptualization, funding, supervision, and drafting the original manuscript: N.M. Drafting the original manuscript: J.S.E. Formal analyses and visualization: A.N.Z. Further editing, revisiting, and approving the manuscript: A.N.Z., J.S.E., and N.M.

### Data Availability

All survey materials, collected data, and R codes for analysis can be found on the Open Science Framework project website: https://osf.io/vnbcx/?view_only = d281cdfa534f4f4995e6481d40387601.

### Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Ethical Approval

All procedures performed in 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.

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### Informed Consent

All participants gave informed consent to participation in the survey.

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### Supplemental Material

Supplemental material for this article is available online.

### Note

1. During the peer review process, we decided not to include the network analysis we conducted in the original version of the manuscript. Instead, we replaced it with a SEM approach to provide a clearer and more accurate understanding of the variables. The results of the network analysis can be found in Supplemental Material.

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