A Life History Approach on Risk-taking Behaviors Moderated by Gender in Young Adult Spaniards

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Abstract

Traditionally, risk-taking behaviors in young adulthood have been analysed from a psychopathological approach, thus only assessing their negative consequences. Nevertheless, it is key to study the potential benefits that risk-taking provide to young adults. The present study follows the evolutionary approach of life history theory, which suggests that risk-taking is part of an adaptive fast-life history strategy. The main objective was to analyse the moderation role of gender between life history strategy and risk-taking behaviors. Based on a sample of young adult Spaniards, Mini-K was applied to measure *K*-factor as an index for life history strategy, and the Risky Behavior Questionnaire to measure the participation in a series of risk-taking behaviors. Results show that gender moderated the effect of life history strategy on risk-taking behaviors. Specifically, males with a fast-life history strategy showed higher participation in risk-taking behaviors compared to males with slow-life history strategy. In females, there was no difference in risk-taking behaviors based on life history strategy. Results support the life history approach of risk-taking behaviors as a pattern of integrated behavior in a fast-life strategy in young adult males. These findings can be applied to improve intervention programs aimed at reducing risk-taking behaviors in young adult males.

Keywords: life history theory, risk-taking behavior, gender, moderated regression analysis

Introduction

The significant amount of risk-taking behaviors during youth compared to other stages in life is a matter of study in different parts of the world (Duell et al. 2018; Eisner 2002). Reckless driving, unsafe sex practices, bullying or drug use are just some instances of dangerous behaviors whose negative consequences affect not only the individual behaving in such manner but also his close circle and, ultimately, society.

Traditionally, the study of risk-taking behaviors has focused on highlighting the negative consequences of such behaviors on individuals' well-being and health and/or those people who surround them. Such approach originates from epidemiological studies (Hawley 2011) and it is

subject to certain limitations. For instance, a specific behavior might be considered dangerous in a specific cultural context, whereas it might not be so in a different one. Above all, the tendency of such approach to only stress the negative effects has encouraged a psychopathological view on these behaviors, which are highly common amongst young adults, as it has been already mentioned. This psychopathological approach has excessively stressed the costs caused by these behaviors, thus hindering the study of potential benefits for risk-takers. As a result, finding out the true driving force for young adults to behave in such risky manners is also limited. Finally, it must be considered that a psychopathological approach towards risk-taking behaviors can cause a prosocial-antisocial dichotomy, by which behaviors are classified based on their value to society but not to individuals, that is, whether these are of desirable (e.g., regulatory and good) or undesirable value (e.g., disturbing and bad) (Hawley 2002).

To understand why young adults behave in risky manners it is necessary to look at the logic and motivations behind such behaviors. In this sense, an evolutionary approach would pay special attention to the instrumentality and functional value of both strategies, that is, antisocial and prosocial. Whether it is through theft, bullying, cheating or harm threats, or through participating in cooperative and mutual friendships, these behaviors might be encouraged by a need to reach social and material goals (Ellis et al. 2012).

Acquiring social status or having reproductive success are amongst the potential benefits that risk-taking behaviors can bring to young adults. In fact, risk-taking behaviors often play an important role in signalling; success in risk-taking, which implies a real harm, is often admired and provides a certain status, particularly in males (Daly and Wilson 1988; Weisfeld 1999). Besides, from an evolutionary approach, it seems inconvenient to enjoy a long and healthy life if it means giving up finding a partner and, ultimately, the genetic future of the species (Ellis et al.

2012). Therefore, the remarkable increase in risk-taking behaviors during adolescence and youth seems to show how important this stage of life has been for reproductive success throughout evolutionary history, which was subject to strong selection (Ellis et al. 2012).

The Life History Theory (LHT) is a theoretical framework that allows to analyse risk-taking behaviors from an evolutionary approach. It examines how organisms allocate time, energy and resources to different vital functions throughout the life cycle: somatic effort (e.g., body and growth maintenance) and reproductive effort (e.g., finding a partner and parenting) (Stearns 1992). Due to environmental and individuals' own limitations, organisms must carry out trade-offs to prioritise investing resources and energy in specific domains at the expense of another. In such context, natural selection will favour those organisms that program their development and activities (e.g., allocation of energy and resources) to optimize trade-offs throughout the life cycle and according to varied ecological conditions.

When applied to human beings, Life History Theory is conceptualized as Differential K-Theory (Rushton 1985), by which *K*-factor is proposed as a measure of individual differences in Life History Strategy (LHS). *K*-factor is a global measure that largely explains the variance observed in a group of life history traits, such as attachment to parents, romantic attachment security, mating effort, manipulativeness, altruistic feelings, and risk-taking (Figueredo et al. 2006). In this sense, high-*K* individuals show slow LHS, which is characterized by late reproductive and development behavior, preference towards relatively stable relationships with partners, tendency towards long-term investment and results as well as the allocation of resources towards the improvement of long-term growth and survival of both oneself and the offspring. Conversely, low-*K* individuals show fast LHS, which is characterized by the opposite pattern (Ellis et al. 2009; Figueredo et al. 2006). Slow LHS individuals are inherently low-risk

(i.e., low variance) and they focus on having lower numbers of high-quality offspring who will probably survive and have offspring of their own. On the contrary, fast LHS individuals are comparatively of high risk (i.e., high variance) and they focus on finding a partner, they reproduce at earlier ages and they produce a higher number of offspring with more varied results. Generally speaking, and according to Ellis et al. (2012:608): "…the fast LH strategist is a short-term planner, taking benefits opportunistically with little regard for long-term consequences, whereas the slow LH strategist is a long-term planner, delaying immediate gratification in the service of future eventualities."

In view of the above, it can be assumed that, in general, fast LHS individuals tend to relate to an "antisocial behavior pattern". Some clusters of behaviors considered as "social problems" have in fact been found in adolescent pregnancy, parenting and criminalization and crime and drug abuse; all of which relate to fast LHS (Figueredo et al. 2006). Likewise, aggressiveness (Figueredo and Jacobs 2010), drug abuse (Brumbach, Figueredo, and Ellis 2009), deception (Reynolds and McCrea 2015) or gambling problems (Tifferet, Agrest, and Shlomo 2011) has been related to fast LHS. Conversely, slow LHS individuals would relate to "prosocial behavior patterns". It has been demonstrated, likewise, how some personality traits such as sensation seeking, impulsivity and self-control play a key role in the relation between life history strategy and risk-taking behaviors (Copping, Campbell, and Muncer 2013; Mishra, Templeton, and Meadows 2017).

It is incorrect, nevertheless, to deem one strategy to be better than the other. For instance, fast LHS strategies could be the most appropriate in harsh environments where there is economical poverty and individuals have low skills. Under such situations, the individual would accelerate its growth and development with the objective of becoming an adult or having the

status of an adult. Conversely, safe and stable environments would favour slow LHS individuals, who would orientate their resources towards the development of competitive abilities to gain reproductive advantages in the future, to the detriment of a reduction in reproduction (Ellis et al. 2009).

Gender

The evolutionary approach considers gender differences in risk-taking behaviors, which emerge from the role of reproductive competition (Archer 2019). Such competition is generally more intense amongst young adult males as compared to females and older men. In this sense, to achieve reproductive success, an individual will need to invest in the domain of finding a partner or the parenting domain. These domains might mutually exclude one another and favour, ultimately, specialization (Daly and Wilson 1983; Kruger 2008). Such specialization implies that females tend to allocate more resources and energy to the parenting domain due to their role during pregnancy and breastfeeding stages, whereas males focus on the domain of finding a partner (Archer 2019; Trivers 1972). Therefore, males can increase their fitness by having sex with different females, compared to females, whose minimum investment required in the care of the offspring is higher. This means that adolescents and young adult males, compared to adolescents and young adult females, have more to win and less to lose when behaving in a risky manner because successful results can lead to improve appeal and social status and, therefore, reproductive success (Kruger and Nesse 2006; Wilson, Daly, and Pound 2002). In short, due to the role played in the survival of offspring, natural selection has favoured higher avoidance of risk-taking behaviors in females.

As a result, this “taste for risk” promotes a higher involvement of males in risk-taking behaviors, particularly when social status and resources are at stake (Daly and Wilson 1983,

1988), or when the mating motive is activated (Baker and Maner 2008, 2009; Greitemeyer, Kastenmüller, and Fischer 2013). In fact, males tend to take higher risks than females in a wide range of domains, mainly observed risk-taking behaviors (e.g., reckless driving or gambling) (Byrnes, Miller, and Schafer 1999). These gender differences are particularly noticeable in young adults, where the term "young male syndrome" is suggested to explain the high level of risk-taking behaviors in young adult males (Wilson and Daly 1985). Moreover, despite females tending to be risk-averse (Harrant and Vaillant 2008), their preference for risk-prone males rather than risk-averse males has been observed, and males are aware of this (Kelly and Dunbar 2001).

Finally, since fast LHS is linked to higher efforts in finding a partner as a strategy to improve reproductive success compared to parenting, males are expected to relate more to this type of strategy (Ellis et al. 2009; Figueredo et al. 2006). Therefore, and according to previous studies, males are expected to show higher fast LHS compared to females (Figueredo et al. 2011; Gladden, Sisco, and Figueredo 2008; Mishra et al. 2017; Olderbak et al. 2014).

Present study

Previous studies have demonstrated the link between fast LHS and risk-taking behaviors, and that both variables are more prevalent in males. Nevertheless, little attention has been paid to the interaction effects between LHS and gender on risk-taking behaviors. This analysis would answer the question of whether fast LHS females get involved in more risk-taking behaviors, compared to slow LHS males. Moreover, results could be interesting for the design of intervention strategies for specific targets based on life history strategies and gender. For this purpose, the main objective of the present study was to analyse the moderating role of gender on the effect of LHS (measured through *K*-factor) on risk-taking behaviors in young adult Spaniards. The aim was to verify whether LHS has different effects on risk-taking behaviors

based on gender (Figure 1).

It is expected that there will be a negative relation between LHS and risk-taking behaviors, both in males and females, meaning that individuals with fast LHS (low-*K*) will show a greater tendency towards risk-taking behaviors (hypothesis 1). Additionally, males will show faster LHS (low-*K*) and more risk-taking behaviors than females (hypothesis 2). Finally, interaction effects between gender and LHS on risk-taking behaviors are expected, meaning that the effect of LHS on risk-taking behaviors will be differentent based on gender (hypothesis 3).

[Figure 1 near here]

Methods

Participants and procedure

432 young adult Spaniards participated in the study (209 men and 223 women; mean age, *M*=23.57, *SD*=3.57). Participants were mostly single (82.2%), with secondary education (18.6%), vocational training (22%), college (37.1%) or university studies (19.7%). In relation to participants' economic activity, the majority of them were students (50%), and in a lesser extent employed (35.4%) or unemployed (10%). Social Psychology students from the University of Malaga were trained to carry out the task of handing the questionnaire to participants in exchange for a bonus in the module. Stratified random sampling was carried out according to gender and age in order to obtain a representative sample of the population to be studied. Prior to the completion of the questionnaire, participants gave their informed consent. They were only asked for their telephone number and/or e-mail address to subsequently verify they had taken part in the study. Ethical approval for this study was obtained from the Ethical Committee on Experimentation from the University of Malaga (CEUMA) (Registry number: 45-2018-H).

Measures

LH strategy short-form scale (Mini-K)

The Spanish version of the Mini-K questionnaire is a brief self-report composed of 20 items and extracted from the Arizona Life History Battery (ALHB) (Figueredo et al. 2006, 2014; Figueredo and Gaxiola 2007). The Mini-K gathers cognitive and behavioral life history indicators. These psychometric indicators measure individual differences throughout several complementary stages of a coherent and coordinated life history strategy, and which becomes a single multivariate latent construct, that is, the *K*-factor. High-*K* individuals are characterized by a slow life history strategy (slow LHS), while low-*K* individuals tend to show a fast life history strategy (fast LHS). Participants answered items through a Likert-type scale of 7 points, ranging from -3 (*strongly disagree*) to +3 (*strongly agree*). There was an intermediate option of 0 (*Don't know/Non applicable*). The global score from each participant ranked from -60 (minimum slow strategy value) to +60 (maximum slow strategy value). The total score is calculated after adding scores from all items in the questionnaire. Global Cronbach's alpha was 0.72, as seen in previous studies (e.g. Figueredo et al. 2006).

Risky Behavior Questionnaire (RBQ)

The RBQ is a self-report that assesses risk-taking behaviors carried out by an individual during the month prior to the completion of the questionnaire (Auerbach and Gardiner 2012). However, the time gap was broadened to three months for the present study. The aim in broadening the time gap was to increase the possibilities for participants to have taken part in some risky activities included in the questionnaire. The RBQ assesses participation in the following domains considered as risky behaviors: (a) unsafe sexual practices, (b) aggressive and/or violent behaviors, (c) rule breaking, (d) dangerous, destructive and illegal behaviors, (e) self-injurious

behaviors, and (f) substance use. Items are answered through a 5-point Likert-type scale: (0) Never; (1) Almost never (once a month); (2) Sometimes (2-3 times per month); (3) Almost always (2-3 times per week); and (4) Always (4 or more times per week). The questionnaire's global score ranks between 0 and 80, where high scores reflect higher levels of risk-taking behaviors. Each participant's score is therefore obtained from adding the scores from all the items in the questionnaire. Cronbach's alpha showed 0.83, as seen in previous studies (Auerbach and Gardiner 2012; Auerbach, Kertz, and Gardiner 2012).

Data Analysis

Averages from LHS and risk-taking behaviors were obtained by adding total scores from participants and dividing them by the sample size. Pearson's correlation analysis was used to test the relationship between LHS and risk-taking behaviors in males and females (hypothesis 1). One-way ANCOVAs (analysis of covariance) were carried out to analyse gender differences in LHS and risk-taking behaviors, introducing age as covariable (hypothesis 2). The aim was to control the potential effect of age over risk-taking behaviors, as it has been shown in previous studies (Hill and Chow 2002; Wang, Kruger, and Wilke 2009; Wilson et al. 2002). With the aim of analysing the moderating effect of gender on LHS and risk-taking behaviors, a moderating regression analysis was carried out through Model 1 of macro PROCESS (Hayes 2013) (hypothesis 3). Age was introduced as covariable. LHS, risk-taking behaviors and age scores were standardized, in order to improve the interpretation of regression coefficients in the moderating analysis. A standardised solution is therefore reported through the moderation regression analysis.

Results

Preliminary analysis

At a descriptive level, the global average score in LHS was M = 27.93 (SD = 11.67). The positive value of the average indicates that the sample analysed showed a general average tendency towards slow LHS. This result is precisely in line with the low levels of risk-taking behaviors expressed by participants, *M* = 12.10 (*SD* = 8.55). Table 1 shows descriptive statistics for males and females in LHS, risk-taking behaviors and age.

[Table 1 near here]

Hypothesis 1 stated a negative relationship between LHS and risk-taking behaviors, both in males and females. Table 1 shows intercorrelations between the variables analysed, by gender. As it can be observed, LHS showed a negative correlation with risk-taking behaviors in males. Therefore, risk-taking behaviors tended to relate to fast LHS in males, as expected. By contrast, in females, LHS and risk-taking behaviors did not show any statistically significant correlation. Furthermore, age showed a negative correlation with risk-taking behaviors in males, meaning that younger males engage in more risk-taking behaviors, compared to older males (Table 1). Age was thus treated as control variable in the moderation analysis.

Hypothesis 2 predicted that males would exhibit a faster LHS and would engage in more risk-taking behaviors compared to females. One-way ANCOVA controlling for age showed significant statistical differences between males and females in LHS ($F(1,428) = 13.77$, $p \leq .001$; $\eta 2$ partial = .03), with female participants expressing slower LHS (M = 29.83; SD = 10.64), as compared to male participants (M = 25.89; SD = 12.41). Likewise, another one-way ANCOVA controlling for age showed significant statistical differences in gender based on risk-taking behaviors ($F(1,428) = 10.32$, $p \leq .01$; $\eta 2$ partial=.02). In this sense, male participants (*M* = 13.27, *SD* = 9.37) expressed engaging in risk-taking behaviors to a higher extent than female

participants (M = 11, SD = 7.6). As it was expected~~,~~ there were gender differences in LHS and risk-taking behaviors, with males showing a faster LHS and engaging in risk-taking behaviors to a larger extent than females.

Moderation Analysis

For Hypothesis 3 it interaction effects between gender and LHS on risk-taking behaviors were predicted. Both LHS and gender had a main effect on risk-taking behaviors (Table 2). As it was expected, LHS predicted lower levels of risk-taking behaviors, while being a male had the opposite effect. Furthermore, gender showed a moderating effect on LHS, so the effect of LHS on risk-taking behaviors varied based on gender. More precisely, a statistically significant conditional effect of LHS on risk-taking behaviors in males was found, b = -.25, t (426) = -3.93, $p \leq .001$. This means that LHS shows a negative effect over risk-taking behaviors in males. However, LHS did not have any effects on risk-taking behaviors in females, b = -.05, t (426) = -.67, p = .51. This means that LHS does not affect risk-taking behaviors in females, in general. As a result, risk-taking behaviors occur to a higher extent in males with fast-LHS tendencies. In fact, the level of risk-taking behaviors in males who tended to show slower LHS was very similar to the one shown by females (Figure 2).

[Table 2 near here]

[Figure 2 near here]

Discussion

The main objective of the present study was to analyse the moderating effect of gender ~~on~~ between LHS and risk-taking behaviors. It was firstly observed that LHS only related negatively to risk-taking behaviors in males, hence supporting hypothesis 1 partially. More specifically,

males who tended to have fast LHS showed higher levels of risk-taking behaviors, partially in line with previous findings (Copping et al. 2013; Ellis et al. 2012; Figueredo et al. 2006; Mishra et al. 2017; Tifferet et al. 2011). As a result, risk-taking behaviors like unsafe sexual practices, aggressive and/or violent behaviors, rule breaking, dangerous, destructive and illegal behaviors, self-injurious behaviors, and substance use would be behaviors linked to fast LHS males. These findings are in line with the assumption that fast LHS strategists relate to a tendency towards short-term investments and results, meaning such risk-taking behaviors would increase the probabilities of survival and reproduction in harsh environments (Ellis et al. 2012). By contrast, LHS and risk-taking behaviors did not correlate in females. This result is discussed below.

Gender differences in risk-taking behaviors were also identified, being males those with higher tendency towards this type of conduct. This result supports hypothesis 2, and it is in line with previous studies (Kruger 2008; Kruger and Nesse 2006; Wilson et al. 2002). In fact, the moderation regression analysis also showed that gender plays an important role in risk-taking behaviors. This might be explained by the potential benefits males can obtain from these behaviors in the mating effort, which is more intense for them (Archer 2019). Females, on the contrary, have a higher tendency towards parenting, and their lower levels of risk-taking behaviors might be explained by the fact that such behaviors can have a negative effect on offspring, who depend on maternal care to a higher extent (Trivers 1972). Gender differences have also been found on LHS, where males showed higher tendency towards fast LHS as compared to females, as found in previous studies (Figueredo et al. 2011; Gladden et al. 2008; Mishra et al. 2017; Olderbak et al. 2014). In the same line as risk-taking behaviors, this result might also be explained by the fact that males allocate more effort and resources to finding a partner – a domain linked to fast LHS – than females. Conversely, females are implied to a

higher extent in the parenting effort, associated with slow LHS (Ellis et al. 2009; Figueredo et al. 2006).

Finally, a moderating effect of gender on LHS was found, in line with Hypothesis 3. More precisely, it was observed that risk-taking behaviors occur mainly in males with a tendency towards faster LHS. This means that risk-taking behaviors might have a signalling function in males with fast LHS, possibly with the aim of obtaining the respect of other males and access sexual partners (Daly and Wilson 1988; Weisfeld 1999). Conversely, those males with slower LHS showed lower levels of risk-taking behaviors. Such lower involvement in risk-taking behaviors by males with slow LHS might be related to a preference of such individuals to have more stable relations and invest in long-term resources (Archer 2019). As a result, for slow LHS males, risk-taking behaviors might imply higher costs than benefits for their survival and reproduction (Ellis et al. 2009). Furthermore, these results show the high variability of risk-taking behaviors in males, so it could be suggested that slow LHS in males has not only a buffering effect on risk-taking behaviors but also a signalling function. Such signalling effect would mainly relate to less harsh and more stable environments, where risk-taking behaviors are unnecessary and long-term investments can lead to higher status and reproductive success (Ellis et al. 2009).

It must also be mentioned that, LHS did not have any effect on risk-taking behaviors in females. This means that females with fast LHS did not differentiate from those females with slow LHS in the expression of risk-taking behaviors. This finding is probably explained by the fewer benefits females obtain from the type of risk-taking behaviors measured with the RBQ, as compared to males. In fact, it has been observed that a fast LHS indicator such as age of menarche predicts higher sexual risk-taking behaviors, but not other types of risk-taking

behaviors (Belsky et al. 2010). Therefore, despite the fact that risk-taking behaviors might be beneficial for males in terms of status and reproductive success in certain contexts, especially in fast LHS males (Daly and Wilson 1988; Weisfeld 1999), risk-taking behaviors in females might have high negative costs. Therefore, it could be said that regardless of the life history strategy they may adopt, females tend to be risk avoiders, due to their role in the survival of their offspring (Archer 2019; Trivers 1972).

Limitations

One of the main limitations of the study is the use of face-to-face surveys for the collection of data. Face-to-face surveys allow interviewers to be present whilst participants complete the questionnaire. One of the advantages is that participants can ask questions during the survey completion and therefore ensure full correct completion. However, this methodology can also have certain limitations, particularly when questionnaires include sensitive questions that might lower the rate of answer, increase nonresponses and reporting errors (Tourangeau and Yan 2007). The present study includes sensitive questions related to a wide range of risk-taking behaviors, for which participants were asked to give socially undesired answers. As a result, the level of risk-taking behaviors expressed by participants might be lower than they are. Such limitation also applies to the Mini-K instrument, which also contains sensitive questions related to the type of relation participants had with their parents during childhood or with their current partners. As a result, and despite the emphasis placed on the anonymity and confidentiality of the survey, participants might have lied in order to avoid embarrassment and possible repercussions from disclosing sensitive information.

Conclusion

In conclusion, the influence of life history strategies on risk-taking behaviors in young adult Spaniards has been demonstrated. Findings from the present study support the change of approach that has been happening on the adaptive value of risk-taking behaviors. In this sense, compared to a psychopathological approach, assuming a functional approach on these behaviors implies considering them under a rational logic. The evolutionary paradigm thus broadens the field of analysis of risk-taking behaviors, highlighting not only the potential costs but also the potential gains from behaving in such risky manners. The Life History Theory allows the discovery of differences between individuals regarding different vital survival and reproduction strategies. Risk-taking behaviors can therefore have an adaptive value as they are part of fast LHS, particularly in the case of males, who would tend to express an "antisocial behavior pattern" with a logical and functional value in specific contexts.

These findings have potential implications for intervention strategies designed to reduce risk-taking behaviors. More specifically, due to the adaptive value of such risk-taking behaviors for fast LHS males, intervention programs aimed solely at reducing this type of behaviors would have higher probabilities of failure. In this sense, it is necessary for such intervention programs to include less negative alternative behaviors through which fast LHS males could reach their adaptive objectives. Moreover, intervention programs would beneficiate if they focused more on modifying those individuals' contextual characteristics which make risk-taking behaviors highly adaptive, as it has been previously proposed (Ellis et al. 2012). Furthermore, it was recently found that intervening on LHS during early childhood reduces risk-taking behaviors in young adulthood (Dunkel et al. 2020). Although such intervention was implemented early in life, LHS shows developmental plasticity in older stages of life according to changing contextual characteristics (Brumbach, Figueredo, and Ellis 2009; Dunkel et al. 2015; Del Giudice 2009).

This means there is room for potential changes in risk-taking behaviors in young adults through intervention programs aimed at altering LHS.

As far as we are aware, this is the only study thus far that has analysed the effect of LHS on risk-taking behaviors in a sample of young adult Spaniards. Results confirm those obtained in previous studies, so it seems that the relation between LHS and risk-taking behaviors extrapolates to a cultural context that had not been analysed before. The present study seems to also be the first one to analyse the moderating effect of gender in the relation between LHS and risk-taking behaviors. Results show that the effect of LHS on risk-taking behaviors seems to only occur in males, whilst LHS does not have any effect on females regarding risk-taking behaviors. Nevertheless, such finding must be treated with a degree of caution until it is not replicated in future studies.

It would be appropriate to find out in future studies which are the motivations behind risk-taking behaviors. Obtaining social status and finding a partner have been noted as two of the main motivations that relate to risk-taking. However, it would be interesting to analyse how such motivations affect the different evolutionary domains of survival and reproduction. It would also be appropriate to study the difference in motivations between individuals with fast and slow LHS, which could be the cause of the differences in attitudes towards risk-taking behaviors between both strategies.

Declaration of Conflicting Interests

No potential competing interest was reported by the authors.

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Table 1. Descriptive statistics (means and standard deviations) and zero-order correlations for all variables measured by gender

	$M_{females}$	$SD_{females}$	1	2	3
1. Life history strategy	29.83	10.64	-	-.06	.07
2. Risk-taking behaviors	11.00	7.60	-.25**	-	-.12
3. Age	23.11	3.61	.07	-.20**	-
M_{males}			25.89	13.27	24.06
SD_{males}			12.41	9.37	3.48

Above the diagonal: correlation values for females; below the diagonal: correlation values for males

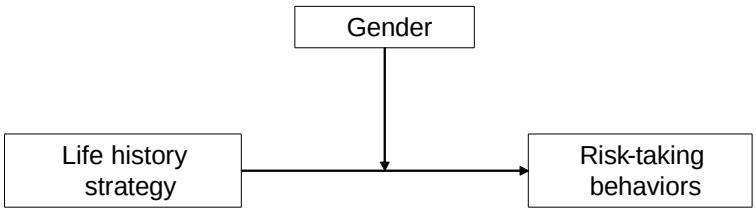
** $p < .01$, two-tailed.

Males, n=209; females n=223

Table 2. Moderation analysis of gender over the influence of life history strategy on risk-taking behaviors, controlled by age

					95% CI	
Variable	*coeff*	*SE*	*t*	*p*	*LL*	*UL*
Constant	-.01	.05	-.26	.79	-.11	.08
Life history strategy	-.15	.05	-3.10	.00	-.24	-.05
Gender	-.25	.10	-2.65	.01	-.44	-.07
Life history strategy * Gender	.20	.10	2.11	.04	.01	.39
Age	-.15	.05	-3.13	.00	-.24	-.05
	R^2 *of the model* = .08, $F(4, 426) = 8.81$, $p < .001$					
	R-square increase due to interaction = .01, $p \leq .05$					

NOTE: Entries are standard coefficients


Gender
Life history strategy
Risk-taking behaviors

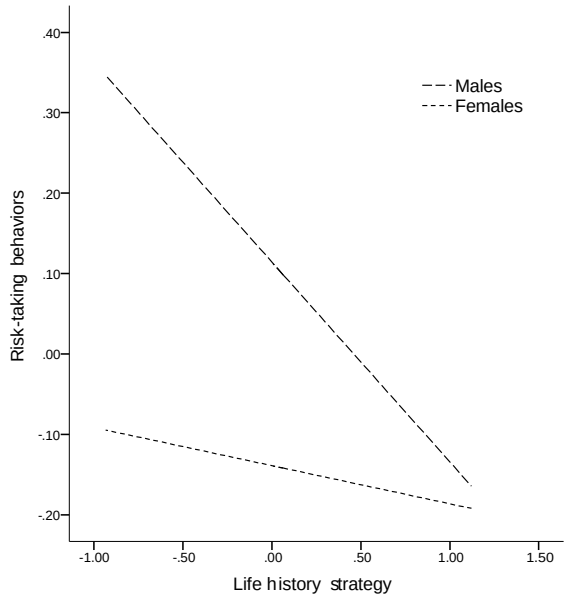

Males
Females
Risk-taking behaviors
.40
.30
.20
.10
.00
-.10
-.20
-1.00
-.50
.00
.50
1.00
1.50
Life history strategy

Figure 1. Model of LHS effect on risk-taking behaviors moderated by gender.

Figure 2. LHS effect on risk-taking behaviors moderated by gender (x-axis: high life history strategy values indicate slower LHS).