



Life history strategy and stress: An effect of stressful life events, coping strategies, or both? [☆]



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ABSTRACT

Life history (LH) theory provides an evolutionary account of individual differences in various traits, including wellbeing. The theory distinguishes between a fast LH strategy, indicated by a short-term perspective (e.g., impulsivity), versus a slow LH strategy, indicated by a long-term perspective (e.g., more constraint behavior). Previous studies have reported an association between a fast LH strategy and more stress, but much of the mediating mechanisms are still unknown. Accordingly, we present three studies testing 1) whether LH strategy is directly associated with the number of disruptive life events and coping strategies, and 2) whether life events and coping mediate the LH-strategy-stress relationship. The results of the three studies converged: Faster LH strategists reported more disrupted life events, showed a less effective coping pattern, and life events and coping both partially mediated the LH strategy-stress association. These results point to several factors that can explain why LH strategy relates to stress.

1. Introduction

Individuals differ in their propensity to experience stress. Whereas some react strongly to minor life stressors, others seem to remain relatively calm even in the most adverse situations. In addition, some people seem to run into potentially distressing circumstances often, whereas others seem to navigate through life experiencing much less disruptive life events (Folkman, 1984).

In the recent literature, evolutionary-informed theories aimed to explain such individual differences have become more prevalent (Del Giudice, Ellis, & Shirtcliff, 2011; Ellis, Boyce, Belsky, Bakermans-Kranenburg, & Van Ijzendoorn, 2011; Figueredo et al., 2006). One of those theories is the Life History (LH) theory, which was initially focused on explaining differences in reproductive strategies between species (Wilson, 1975). Central to the theory is that in order to maximize reproductive success (i.e., getting offspring living long enough to reproduce themselves), organisms have to divide their available resources (e.g., time, energy) between mating and parental investment. As such, some species tend to invest relatively much in mating and

producing offspring, but provide lower levels of parental care (e.g., rabbits). This is often referred to as a *fast LH strategy* (Nettle, 2010). Other species have adopted a lowered reproduction rate but compensate by providing higher levels of parental investment to increase the survivability of the offspring (e.g., elephants). This is referred to as a *slow LH strategy*.

The fast versus slow life history strategy does not reflect a dichotomy but rather a continuum on which species can be placed, based on their reproductive characteristics. On this continuum, all humans adopt a relatively slow LH strategy. Nevertheless, it has been argued that individual differences exist, with some people tending towards a relatively faster and others towards a slower LH strategy (Del Giudice, Gangestad, & Kaplan, 2015; Figueredo, Vasquez, Brumbach, & Schneider, 2004; Rushton, 1985). This insight turned out to be significant for psychological research because LH strategies are assumed to relate not only to traits directly relevant to reproduction, such as one's sexual and parental attitudes and behavior, but also to a wide range of other traits and behaviors such as personality, cognitive abilities, social behavior, time perspective, physical health, and mental health

[☆] Authors' note: In all three studies, informed consent was obtained from the participants. All studies were conducted in line with the ethical guidelines of the Department of Psychology at the affiliation of first Author.

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(Figueredo et al., 2006; Hengartner, 2017). The idea behind this is that traits are partially orchestrated into the same direction in order to support one's adopted strategy. This notion has now received substantial empirical support. For example, using large-scaled population samples, scholars have found that various traits and behaviors form a common factor that is indicative of one's LH strategy (Figueredo et al., 2004, 2006) and links between LH strategy and personality types have been shown in humans (Dunkel & Decker, 2010) and animals (Hengartner, 2017).

Even though LH strategy is assumed to be associated with a wide range of human characteristics, the present article presents a series of studies focusing on one specific topic in this field, namely the relation between LH strategies, stressful life events and coping. The rationale for those studies is that previous research on LH strategy has consistently found that, on average, a faster LH strategy is associated with higher levels of stress and lower levels of mental well-being (e.g., Hurst & Kavanagh, 2017).¹ However, there are still open questions as to why and how such relations occur. There may be several reasons why a faster LH strategy may associate with increased subjective stress levels. The first is that, compared to slow LH strategists, fast LH strategists may not necessarily be worse at dealing with stress (i.e., coping) once it occurs, but, –e.g., due to a difference in life style–, simply experience more disruptive life events (Del Giudice et al., 2011).

The second possibility is that faster LH strategists would not differ substantially from slower LH strategist in the average number of the disruptive life events encountered, but are less effective in dealing with them. The third possibility is that faster LH strategist may encounter more disruptive life events as well as are less effective in dealing with them.

The present set of studies systematically tests these various possibilities by addressing the following research questions: 1) Does LH strategy (fast vs slow) relate to the level of stress/wellbeing? 2) Does LH strategy relate to the number of disruptive life events one encounters? 3) Does LH strategy relate to the way one deals with stress, – i.e., coping? In addition, 4) we address the question whether disruptive life events and coping mediate the assumed relation between LH strategy and stress.

1.1. Life history strategy, stress, life events, and coping

Tops (2014) suggested that the LH strategy-stress association may partially relate to different behavioral control mechanisms, although he did not empirically test that assumption. The notion was that slow LH strategists may primarily use more (pro)active forms of coping in which one already tries to anticipate environmental threats and tries to prevent them.² Consequently, they would be less likely to encounter stressors. Yet, it is obvious that not all stressors can be prevented in one's life. Tops (2014) argued, however, that the active control associated with a slow LH strategy may also be helpful in dealing with stressors once they occur. In other words, slower LH strategists may engage in active behavior to either remove the stressor or otherwise minimize its negative effects on mood. In addition, the feeling of control that accompanies such active approach would already relieve some of the stress, because it is since long known that feelings of control relate negatively to subjective experience of stress (Folkman, 1984). The idea that slow LH strategists use a more active way of coping is in line with the broader findings that they tend to engage in more planning and proactive behavior in general (Figueredo et al., 2006).

A faster LH strategy, on the other hand, would be associated with more reactive ways of dealing with stress, characterized by a tendency of limited foresight and a stronger focus on showing enhanced

responses to stressors after they occurred (Tops, 2014). Although dealing with adverse situations in an ad-hoc way may have adaptive value in some environments (Del Giudice et al., 2011; Ellis et al., 2011; Frankenhuis, Panchanathan, & Nettle, 2016), on average, reactive control may reflect less effective coping mechanisms compared to more active coping. For example, due to their short-term perspective, fast LH strategists are assumed to act more impulsively thereby enhancing the probabilities of long-term negative, and potentially stressful, effects such as conflicts, loss of jobs or relationships, and possible legal problems (Jonason, Koenig, & Tost, 2010). In addition, a reactive way of dealing with potentially disruptive events is assumed to be associated with maintained activation of the stress systems in order to quickly respond to unexpected stressors. Thus, there would be higher levels of anticipatory, yet unfocused, stress (i.e., repeated or continuous activation). Consequently, fast LH strategists, on average, would more often experience stress in general.

With regard to the stressors encountered, traditional stress research has come up with various scales to measure a range of major and minor life events that can be experienced as threatening and/or disruptive (e.g., Cochrane & Robertson, 1973; Holmes & Rahe, 1967). Those events range from the death of someone close, to rather minor events such as getting a speed ticket. Using these scales, it has been shown that experiencing more disruptive life events during previous years, is associated with more stress-related complaints (Folkman, 1984). However, to the best of our knowledge, it has not been directly tested before whether psychometric scores of LH strategy are indeed associated with the number of life events, and whether such life events directly (statistically) mediate the relation between LH strategy and stress/well-being. Subsequently, one of the first aims of the present research is to address these two sub-questions in three different samples that use slightly different methods to assess LH strategy, life events, and well-being/stress.

The second basic question that, remarkably, has not been directly addressed before is the extent to which LH measures relate to traditional measures of active versus reactive coping styles and whether those mediate the relation between LH strategy and stress. Although previous research has identified many different coping styles, some general styles seem to emerge consistently (Carver & Connor-Smith, 2010). For example, the coping literature has distinguished between coping styles that are aimed at actively dealing with stressors, and coping styles that try to decrease its negative effects such as cognitive reappraisal of events or simply avoiding thinking about it (Carver & Connor-Smith, 2010). Given the literature on stress from a LH theory perspective as mentioned above, it can be expected that fast LH strategists would score lower on (pro)active measures of coping (Tops, 2014), whereas they may score higher on measures that indicate less effective, and more reactive coping styles, such as ignore problems once they occurred (i.e., avoidance).

1.2. The measurement of life history strategy

The fact that LH strategy is a rather broad construct comprising various aspects of behavior and attitudes, has probably contributed to its different operationalizations in previous studies. Several previous studies operationalized LH strategies as the shared variance of a wide range of theoretically determined indicators, such as quality of relationships with family and friends, involvement in the community, and certain aspects of personality (Giosan, 2006; Olderbak, Gladden, Wolf, & Figueredo, 2014). This operationalization is referred to as the *K*-factor (Figueredo et al., 2004), in which *K* indicates the extent to which one adopts a fast versus slow LH strategy.³ Based on this approach,

¹ As the fast versus slow LH strategy is a continuum this also implies that a slow LH strategy is associated with less stress and better subjective well-being.

² Tops (2014) referred to this a predictive control

³ The term *K* comes from the biological definitions of LH strategy, in which those are considered along a so-called *r*-*K* continuum. Here, *r* indicates the reproduction rate (number of offspring produced), and *K* the carrying capacity

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