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Life-History Calibration of Social Hierarchies: Childhood Adversity Predicts

Leadership Preference through Relational Social Investment

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Declarations

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Highlights for the manuscript "Life-history calibration of social hierarchies: childhood adversity predicts leadership preference through relational social investment"

- People with more adverse childhoods are more likely to endorse dominant leaders.

- Relational social investment is a key mediator of this relationship.

- Early adversity does not necessarily undermine intellectual development investment.

- Not all future-oriented investment predicts a preference for prestigious leaders.

Abstract

One approach to understanding leadership styles in human society is through the lens of followers' preferences. From a life history perspective, followers from different backgrounds may develop different psychological traits and social connections that are compatible with the type of future environments that they expect following childhood experiences. This psychosocial life-history profile of the follower, representing different domains of fitness investment, predisposes them to preferences for dominance-style or prestige-style leadership. We tested multiple aspects of followers' life-history profiles as potential mediators between childhood adversity and leadership preferences in hypothetical scenarios in two studies using multisite samples in Mainland China. Study 1 ($N = 898$) focused on childhood economic conditions, and Study 2 ($N = 1,233$) examined childhood resource insecurity and negative life events as independent indicators of childhood adversity. The results indicated an association between childhood adversity and a preference for dominant (rather than prestigious) leaders that was mediated by indicators of relational social investment but not by indicators of intellectual, long-term reproduction, or generalized social investment. This finding represents a new direction for research into leadership preferences as well as the application of life-history theory to social psychology.

Keywords: childhood unpredictability, dual model of leadership, early adversity, leadership style, life history calibration, somatic efforts

Life-History Calibration of Social Hierarchies: Childhood Adversity Predicts

Leadership Preference Through Relational Social Investment

Leaders in human society serve vital social functions such as within-group decision-making, coordination of collective actions, delivery of rewards, and enforcement of punishment (van Vugt et al., 2008; van Vugt & Smith, 2019; van Vugt & von Rueden, 2020). On the basis of distinct adaptive functions and evolutionary origins, leadership can be broadly categorized into two styles (Cheng et al., 2013; Maner, 2017; van Vugt & Smith, 2019). A stereotypical *dominant leader* exerts coercive power through punishment or intimidation. Followers conform to them to avoid the fitness costs associated with defiance and disobedience (Cheng et al., 2021). A stereotypical *prestigious leader*, by contrast, wields influence through information sharing and altruistic contributions. Followers voluntarily obey and imitate the prestigious leader to gain access to such benefits (Henrich & Gil-White, 2001; Henrich et al., 2015).

At first glance, prestigious leaders are more welcomed than dominant leaders whether as informal leaders in small-scale, traditional societies (Boehm, 1999; von Rueden et al., 2014), or as long-term romantic partners, friends, and role models in large-scale societies (e.g., Laustsen & Peterson, 2015; Snyder et al., 2008; Wood et al., 2013). However, dominance-style leadership persists in modern society, as evidenced by political figures characterized by dominant leadership styles still enjoying wide public support throughout the world (Laustsen & Petersen, 2017). The purpose of the current research, then, is to provide a new perspective on the persistent phenomena of

individual differences in the preferences for dominance-style, rather than

prestige-style, leadership in modern society (van Vugt & Smith, 2019). Specifically,

we focused on how different early experiences might shape followers' leadership

preferences, and how such effects might be mediated by various components of

behavioral life-history (LH) profiles (Figueredo et al., 2006; Sear, 2020).

1.1 Dominance-Style and Prestige-Style Leadership

The social-cognitive mechanisms underlying leadership and followership in

human groups are largely shaped by the evolutionary history and developmental

environments of our species (Garfield et al., 2019; Hawley, 1999). Dominance-style

leadership in humans is an extension of dominance hierarchies in other animals,

which are direct products of intraspecific aggression and fighting ability assessment

(Arnott & Elwood, 2009; Hobson & DeDeo, 2015). People follow dominant leaders

in exchange for protection and conflict resolution (Cheng et al., 2021). Nevertheless,

human society also presents an alternative and relatively egalitarian route to

leadership, which is based on prestige (Henrich et al., 2015; Henrich & Gil-White,

2001). Followers voluntarily pay tribute to prestigious leaders because of their

accessibility as social learning models (van Vugt & Smith, 2019). The increasingly

sophisticated and cumulative cultural innovation in human society provides a strong

incentive for social learning (Boyd & Richerson, 1996), which should favor

prestige-style over dominance-style leadership. Consistent with this view, research

has shown that children as young as 3 to 4 years old showed social learning bias

toward models with high prestige (Chudek et al., 2012). Children also preferred to

copy from models who are accessible, which is not characteristic of dominant leaders (see Wood et al., 2013 for a review).

There are other reasons that dominant leaders are less well-regarded than prestigious leaders are in human society. Dominance-style leadership exposes leaders to the temptation to sacrifice group goals for personal gains in social dilemmas (Maner & Case, 2016), essentially turning them into free riders that endanger within-group cooperation (Boehm, 1999). Therefore, dominance-style leadership is largely suppressed by anti-self-aggrandizing and anti-bullying social norms in contemporary (and probably ancestral) small-scale societies (Boehm, 1993, 1999; von Rueden et al., 2014). Social maneuvers such as gossiping and the formation of coalitions are widely used by followers and subordinates to curtail the coercive power of dominant leaders (Gavrilets et al., 2008; Söderberg & Fry, 2016). This deep-rooted proclivity for egalitarianism could explain research findings that people exhibit more negative attitudes toward behaviors and traits that manifest dominance rather than prestige (Spisak et al., 2012; Zhu, Chen, et al., 2021). In group formation processes, both dominance and prestige assist leader candidates in gaining influence, but dominant leaders are less well regarded than prestigious leaders are (Cheng et al., 2013). People are also more inclined to associate benefit-generating traits (i.e., prestigious traits) than cost-inflicting traits (i.e., dominant traits) with high status (Durkee et al., 2020).

Despite the egalitarian pressure against dominance, dominant leaders are by no means scarce in contemporary organizations and societies (Lukaszewski et al., 2016;

Zeng et al., 2021), including small-scale societies with strong egalitarian norms (e.g.,

Garfield et al. 2020; Garfield & Hagen, 2020). Focusing on leader characteristics and

the general effectiveness of different leadership styles would only provide a partial

answer to this dominance paradox; how environments might shape followers'

leadership preferences must be analyzed to fully understand leader-follower

relationships in humans.

Research has demonstrated that at the societal level, people are more likely to

endorse strong, dominant leaders in threatening environments (Kakkar et al., 2017;

Nettle & Saxe, 2021). At the individual level, dominant leaders are preferred in

intergroup conflict situations (Lausten & Petersen, 2015; Spisak et al., 2012), whereas

prestige leaders, as indicated by their trustworthy, feminine facial appearance, were

preferred in peacetime (Little et al., 2012; van Vugt & Grabo, 2015). When studying

adolescent attachment and social rank, Irons and Gilbert (2005) determined that both

avoidance and ambivalence attachment, which serve as internal cues for adverse early

environments, predicted unfavorable comparisons with others and submissive

behaviors. Such behaviors are typical in dominance hierarchies rather than prestige

hierarchies (Henrich & Gil-White, 2001; Zeng et al., 2021). We argue that LH

calibration processes (i.e., the flexible development of LH profiles to maximize one's

fitness in the likely future environments; Del Giudice et al., 2011; Ellis & Del Giudice,

2019) may provide a unifying mechanism for these seemingly separate findings

regarding hierarchy formation and leadership preferences and allow us to propose

hypotheses regarding pathways from early experiences to leadership preferences.

1.2 Life-History Calibration and Its Relation to Childhood Adversity

Evolutionary LH theory maintains that organisms have limited resource budgets in an environment, which forces them to prioritize certain types of fitness investment at the expense of others (e.g., reproductive efforts versus somatic efforts, mating versus parenting; Del Giudice et al., 2015; Stearns, 1992). Such LH tradeoffs produce different phenotypes adapted to environmental conditions that vary in resource availability and unpredictability (Del Giudice, 2020; Ellis et al., 2009). This tradeoff view has been adopted as a central tenet in the LH literature of evolutionary psychology (LHT-P) to understand the development of psychosocial traits in humans (Nettle & Frankenhuis, 2020; Sear, 2020; Del Giudice et al., 2015). In addition to LH outcomes such as longevity and reproductive timing, LH tradeoffs in humans might affect outcomes further downstream (i.e., behavioral and psychological outcomes) via intermediate mechanisms such as neuroendocrine patterns (Chang et al., 2019; de Baca & Ellis, 2017).

These intermediate processes allow LH calibration of behavioral and psychological traits to happen. Overall, human behavioral LH profiles are responsive to environmental conditions, especially during early periods of development (Ellis et al., 2009; Sear, 2020). Based on the adaptive calibration model, for example, individuals growing up in harsh environments are likely to develop a "vigilant" neuroendocrine pattern characterized by heightened alertness to threats and constant activations of the hypothalamic-pituitary-adrenal (HPA) axis (Del Giudice et al., 2011). With this vigilant neuroendocrine configuration, individuals are quick to

respond to transient opportunities but at the cost of future-oriented fitness investment due to HPA hyperactivity, which has detrimental effects on one's health and cognitive development (see Del Giudice et al., 2011 for a review). Conversely, safe and stable early experiences free up stress-response resources to be allocated to future-oriented activities.

Based on this reasoning, harsh and unpredictable environments are predicted to be associated with "fast" behavioral LH profiles prioritizing present-oriented reproduction over future-oriented somatic efforts (i.e., growth, bodily maintenance) and future reproduction (Del Giudice et al., 2015). In human society and some primate communities, future-oriented fitness investment is also reflected in a range of behavioral traits: (1) *intellectual investment* (i.e., somatic efforts that improve deliberate cognitive abilities and executive functions, including inhibition, self-control, and planning, that are conducive to learning); (2) efforts to accrue social assets that can be used later to promote inclusive fitness (Boehm, 1999; Hamilton, 1964). Such social efforts include *relational social investment* (i.e., fostering emotional attachment and engaging in reciprocal exchanges of resource with family and friends), *long-term reproduction investment* (i.e., maintaining stable romantic relationships or being a good parent), and *generalized social investment* (i.e., assisting others and benefiting the group without expecting personal returns).

In support of these extrapolations, behavioral and neuropsychological studies have shown that, on the one hand, childhood adversity is associated with developmental impairment in executive functioning (Merz & McCall, 2012; Mueller

et al., 2010) and less deliberate cognitive styles (Del Giudice & Crespi, 2018; Wang et al., 2022). All these findings can be interpreted as reduced investment in intellectual development due to LH calibration to an unpredictable world. On the other hand, adverse environments and health status in childhood are associated with LH profiles of heightened short-term reproductive investment and behaviors that are detrimental to social relationships (e.g., aggressiveness, impulsivity, and risk-taking in adolescence; Belsky et al., 2012; Chang & Lu, 2018; Chang et al., 2019). Other studies showed that indicators of both intellectual investment (future-oriented planning) and relational social investment (secure emotional attachment with parents) mediated the relationship between adverse environments and other-centered moral judgments (Zhu et al., 2018). In summary, childhood adversity might provide cues about external environments for the calibration of stress-response systems, leading to behavioral LH profiles that are differentially conducive to intellectual and social investment (Del Giudice et al., 2011; Nettle et al., 2013).

1.3 Multiple Pathways from Early Experiences to Leadership Preferences

Different leadership styles not only function differently in predictable versus unpredictable environments (Hooper et al., 2010), they might also differentially benefit (or harm) individuals with different priorities and expectations (from their early experiences and their behavioral LH profiles). Safra et al. (2017) extrapolated that individuals' LH profiles may serve as internal cues to anticipated social hierarchy and predispose individuals to different leadership preferences. This is supported by their finding that childhood experiences of deprivation positively predicted children

and adults' preferences for leaders with more dominant and less trustworthy facial features, although they did not directly measure LH profiles (Safra et al., 2017). Another recent study revealed that behavioral LH profiles favoring future-oriented fitness investment were associated with preferences for prestigious leaders (Zhu, Chen, et al., 2021). Importantly, however, previous research including Zhu, Chen, et al. (2021) did not distinguish among different aspects of behavioral LH profiles corresponding to different domains of fitness investment.

Building on these previous works and aforementioned LH calibration mechanisms, we propose that different aspects of behavioral LH profiles might mediate the relationship between childhood adversity and leadership preferences in different ways. One such mediator might be intellectual investment reflected in planning and self-control behaviors, which has been identified as important components of future-oriented LH profiles (Figueredo et al., 2006). From the LH perspective, childhood adversity might decrease individuals' expectation of rewards from long-term efforts (Pepper & Nettle, 2017) and predispose them to cognitive-developmental tradeoffs of immediate feedback and intuition versus deliberate planning and control (Wang et al., 2022). Consistent with this view, research has shown that early experiences of resource scarcity are associated with lower educational attainment (Chowdry et al., 2011; Sirin, 2005). Childhood adversity is also linked to less deliberate cognitive styles through behavioral LH profile (Wang et al., 2022), and to enhanced impulsivity and risk-taking (both indicating low intellectual investment in cognitive inhibitive abilities) when exposed to uncertainty,

whether in experimental or real-life settings (Lu & Chang, 2019; Griskevicius et al., 2011; Uggla & Mace, 2015). Lacking deliberate cognitive skills necessary for social learning (Wood et al., 2013), in turn, would render prestigious leaders less appealing as social learning models to the individuals. Hence, we predicted behavioral LH profiles showing low intellectual investment to be associated with lower preferences for prestigious leaders.

Another aspect of behavioral LH profiles that might explain the relationship between childhood adversity and leadership preference is relational social investment, reflected in family ties and friendships. According to the predictions of the LH framework, individuals growing up in unpredictable and harsh environments tend to divert resources away from relational social investment necessary to maintain stable relationships and trust with family and friends. Social support from relatives and friends is conducive to human reproductive success through cooperative breeding (Kramer, 2010) and is, therefore, considered an essential component of LH profiles (Figueredo et al, 2006). Indeed, multilevel data from large-scale international surveys revealed that both individual-level resource insecurity and society-level violent threats were associated with reduced ingroup trust (i.e., lower trust of family and friends; Zhu et al., 2021). One research also found that biological markers for adverse environments (e.g., low birth weight) were associated with low general trust in adulthood (Petersen & Aarøe, 2015). Importantly, relational social investment serves as a safety net that provides individuals with "outside options" or allies that can protect them from the coercive power of dominant leaders (Boehm, 1999; Mattison et

al., 2016). Without stable relationships with family and friends, low-status individuals

are prone to seek protection from dominant leaders to avoid exploitation by

high-status peers (Irons & Gilbert, 2005). This leads to the predictions that low child

adversity should be associated with lower relational social investment, which, in turn,

should be associated with a preference for dominant over prestigious leaders.

Childhood adversity is also associated with reduced investment in future

reproduction (Del Giudice et al., 2015), including efforts to establish stable long-term

romantic relationships (Olderbak & Figueredo, 2010). To the degree that stable

romantic attachment reflects long-term reproduction investment, one might argue that

this aspect of behavioral LH profile might affect leadership preferences as a

by-product of mate preference. Indeed, research has indicated that dominant traits are

typically preferred in short-term rather than long-term mating contexts, whereas

prestige is preferred in long-term rather than short-term mating (Snyder et al., 2008;

Valentine et al., 2014). This leads to the prediction that romantic relationship quality

should mediate the relationship between childhood adversity and leadership

preferences. Finally, childhood adversity may also reduce generalized social

investment, but such altruistic actions do not usually generate "outside options" as

relational social investment does (Boehm, 1999) and, therefore, would not affect the

appeal of dominant leaders. Therefore, we predicted that relational social investment,

but not generalized social investment, would mediate the relationship between

childhood adversity and a preference for dominant rather than prestigious leaders.

To summarize, we hypothesized that childhood adversity might have effects on

individuals' preferences for dominant versus prestigious leaders through different aspects of behavioral LH profiles, especially intellectual investment and relational social investment (see Table 1 for a summary of the hypotheses). Through two survey studies using multisite samples in China, we examined the relative contribution of different psychosocial aspects of LH profiles to leadership preferences and investigated these aspects as potential mediators of the effects of childhood adversity on such leadership preferences. This LH calibration approach has not been systematically explored in the leadership preferences literature.

2 Study 1

Psychosocial LH profiles in humans are commonly measured using psychometric means in LH-based studies in the field of psychology (Copping et al., 2014; Figueredo et al., 2017). These measures reflect varying degrees of fitness investment in different domains. Using one such measure (K-SF-42; Figueredo et al., 2017), we assessed six aspects of participants' behavioral LH profile reflecting different domains of fitness investment. The "insight, planning, and control" component of the K-SF-42 scale represents intellectual investment. "Parental relationship quality," "family contact and support," and "friend contact and support" represent relational social investment. "Romantic partner attachment" reflects long-term reproduction investment. Finally, "general altruism" reflects participants' generalized social investment. In this study, these LH components were treated as independent aspects of LH profiles, rather than indicators of a single K factor.

2.1 Participants

Our multisite sample comprised 898 adults (607 women, age ranging from 18

to 65 years old, mean = 25.80, standard deviation = 11.12) who were recruited

through university online psychological courses and online psychological

health-training programs. The participants, including the university students, resided

in one of seven cities in Mainland China (two cities located in eastern China, two in

southern China, and one city in northern, western, and south-western China,

respectively; see Supplementary Material for more detailed regional comparisons

between participants from different parts of China). The distributions of sex, age,

occupation, and educational background of the participants are detailed in Table 2.

Participants received a participation fee of 10 RMB (approximately US$1.54) after

completing the questionnaire. We received 930 responses. A total of 32 responses

(3.4%) were deemed invalid because they (1) were completed in an extremely short (<

200 s) or extremely long (> 2 h) time, or (2) failed to provide correct responses to the

attention check questions. A sensitivity power analysis using G*Power version 3.1

(Faul et al., 2007) revealed that the current sample size allowed us to detect a

markedly small effect size (Cohen's f^2 = .014) at an alpha level of .05 and statistical

power of 95% for the dependent variable in our models.

2.2 Measures

2.2.1   *Childhood and Current Economic Conditions*

The assessment included six self-report items used by Griskevicius et al. (2011)

to measure participants' economic conditions. Three items measured childhood

economic conditions by asking participants to "think about their life before 7 years

old" and indicate their agreement with the following statements ("My family usually

had enough money for things when I was growing up"; "I grew up in a relatively

wealthy neighborhood"; "I felt relatively wealthy compared to the other kids in my

school."). Another three items measured current economic conditions ("I have enough

money to buy things I want"; "I don't worry too much about paying my bills"; "I

don't think I'll have to worry about money too much in the future"). All items were

rated on 6-point scales ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

Cronbach's αs for childhood and current economic conditions were .80 and .87,

respectively.

2.2.2   *Life-History Profile*

The K-SF-42 (Figueredo et al., 2017), a short-form of the Arizona Life History

Battery (ALHB; Figueredo, 2007), was used to assess different aspects of the

psychosocial LH profile of the participants. Specifically, we used six subscales of

K-SF-42: (1) insight, planning, and control; (2) general altruism; (3) romantic partner

attachment; (4) mother/father relationship quality; (5) family social contact and

support; (6) friends social contact and support. The mean scores of these subscales

were briefly referred to below as INSIGHT, ALTRUISM, ROMANCE, PARENT,

RELATIVE, and FRIEND, respectively. The former three subscales were rated on

6-point scales ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), whereas the

latter three subscales were rated on 4-point scales ranging from 1 (*seldom*) to 4

(*always*). Items of each subscale were averaged to reflect different aspects of a

future-oriented, high-investment (high-K) life-history profile as opposed to a

present-oriented, low-investment (low-K) profile. Cronbach's αs for the six subscales

ranged from .82 to .92.

2.2.3   *Leadership Preference Task*

Participants' preference between dominant and prestigious leaders was

indicated by their responses to the Leadership Preference Task (Zhu, Chen, et al.,

2021). In this task, participants needed to read four different scenarios depicting a

dominant candidate and a prestigious candidate competing for the roles of group

leader for a course assignment, chairman of a student organization in a university,

executive position in a company, and a district political representative, respectively.

The dominant candidates were described as aggressive, assertive, and intimidating,

who are capable and willing to inflict costs on opponents and are considered stronger,

more determined, and feared by others. The prestigious candidates were described as

cooperative, knowledgeable, and agreeable, who are capable and willing to provide

benefits to their followers, and are considered popular, flexible, and modest. These

descriptive scenarios were developed and pilot-tested based on the theoretical

description of dominant and prestigious leaders and relevant self-report and

peer-rating measures (Cheng et al., 2021; Henrich & Gil-White, 2001). Participants

were asked to indicate who they prefer as the leader in each scenario and the number

of dominant candidates that they chose across four scenarios constituted the

dependent measure. The presenting sequence of dominant and prestigious candidates

in the four scenarios was counterbalanced such that participants saw dominant

candidates first in two scenarios and prestigious candidates first in the other two

scenarios. A sample scenario is presented in the online Supplementary Material.

2.3 Results

Means, standard deviations, and correlations among variables are presented in

Table 3.

We examined a statistical mediation model (Figure 1) wherein the effect of

childhood economic condition on leader choice (number of dominant leaders chosen

in the leadership preference task) was simultaneously mediated by the aforementioned

six components of participants' LH profile measured by K-SF-42. Additionally, age,

gender, and current economic condition were entered as covariates in the model.

Model estimation was conducted using maximum likelihood estimation in Mplus 7

software (Muthén & Muthén, 1998–2012). The indirect effects were estimated with

10,000 bootstrapped resamples. Model fit statistics are omitted since the model was

fully saturated.

The results showed that childhood economic condition was positively

associated with ALTRUISM, PARENT, RELATIVE, and FRIEND (ps < .001). It was

negatively associated with ROMANCE (p = .044) and was not significantly

associated with INSIGHT (p = .448). PARENT (p = .005) and FRIEND (p = .003)

were negatively associated with a preference for dominant leaders, albeit INSIGHT,

ALTRUISM, ROMANCE, and RELATIVE were not (ps = .944, .671, .162, and .183,

respectively). Age (β = .04, p = .250), gender (β < .01, p = .964), or current economic

condition (β = -.01, p = .847) had no effects on leader choices. After controlling for

these variables, childhood economic condition did not exert a direct effect on leader

choices (β = .01, p = .751). Childhood economic condition was indirectly and

negatively associated with a preference for dominant leaders through PARENT

(standardized indirect effect = -.02, p = .010, 95% CI [-.05, -.01]) and FRIEND

(standardized indirect effect = -.03, p = .021, 95% CI [-.05, -.004]).

We also examined indirect effects from current economic condition to leader

choices through the same mediators. Participants' current economic condition was

positively associated with PARENT (β = .09, p = .034), RELATIVE (β = .12, p

= .005), and FRIEND (β = .07, p = .005), but not INSIGHT (β = .05, p = .244),

ALTRUISM (β = .04, p = .289), and ROMANCE (β = .03, p = .454). It had a total

indirect effect on the preference for dominant leaders through participants' LH profile

as a whole (standardized indirect effect = -.030, p = .015, 95% CI [-.054, -.006]), but

not through its individual components.

2.4 Discussion

Overall, childhood economic conditions, which indicate resource-related

childhood adversity, indirectly predicted participants' leadership preferences through

indicators of relational social investment. However, childhood resource adversity did

not predict insight, planning, and control, which reflects intellectual investment.

Importantly, not all types of intellectual investments are equally affected by childhood

adversity (Mittal et al., 2015). Moreover, other forms of childhood adversity not

measured in this study might lead to a different result. Consistent with our predictions,

childhood resource adversity was negatively associated with all other aspects of

participants' LH profiles that indicate future-oriented fitness investment. Among these

aspects, however, only relationship quality with parents and friends' social contact and support, both pertaining to relational social investment, significantly mediated the relationship between childhood economic conditions and leader preferences. Because social contact with and support from family exhibited substantial positive correlations with these two components (rs = .55 and .58, respectively), the effect on leader selection may have been accounted for by the other two components of relational social investment. General altruism, which reflects generalized social investment, also did not predict leader selection, which was consistent with our hypothesis.

3   Study 2

The findings of Study 1 indicated that relational social investment is a crucial aspect of the LH profile that mediates the relationship between childhood adversity and leadership preferences. In Study 2, we employed another measure of childhood resource insecurity and added a checklist of negative life events to obtain a fuller picture of childhood adversity than that in Study 1. We also used a new, shorter LH measure focusing on intellectual investment and relational social investment. Finally, we controlled for participants' political attitudes as non-LH influences that may be transmitted through socialization rather than LH calibration processes. Specifically, conservative and hierarchical political attitudes increase endorsements for leaders with dominant traits (e.g., Lausten & Peterson, 2015; Lausten et al., 2015; Lin & Sun, 2018). In this study, we examined social dominance orientation (SDO) and power distance orientation (PDO) as covariates. Both overlap considerably with authoritarianism, which has been linked to an endorsement of authoritarian leaders

rather than more prestigious, transformational leaders (Nettle & Saxe, 2021; Safra et

al., 2017).

3.1 Participants

Participants were 1,233 adults (591 females, age ranging from 18 to 67 years,

$M = 26.13$, $SD = 6.90$) recruited from the same cities in a similar way as in Study 1

(see Table 2 for the distribution of gender, age, occupation, and educational

backgrounds of the participants; see Supplementary Material for regional comparisons

in childhood adversity, behavioral LH profiles, and other measures). Participants

received a participation fee of 10 RMB (about 1.54 USD) after completing the

questionnaire. We originally received 1325 responses, and 92 responses (7.5%) were

discarded as invalid responses based on the same criteria used in Study 1. A

sensitivity power analysis using G*Power 3.1 (Faul et al., 2007) revealed that the

current sample size allowed us to detect a very small effect size (Cohen's $f^2 = .013$) at

an alpha level of .05 and statistical power of 95% for the dependent variable in our

models.

3.2 Measures

3.2.1   *Childhood Resource Insecurity*

The assessment of childhood resource insecurity (used in Zhu et al., 2018,

adapted from Griskevicius et al., 2011 and Brumbach et al., 2009) included six items

measuring how much participants agree to descriptions of childhood family economic

conditions before they were 7 years old (e.g., "My family did not have a stable

income," "My family usually had enough money to buy anything we wanted"), rated

on a 4-point scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). It also

included five items measuring the frequency of experiences associated with financial

insecurity in the same period of life (e.g., "Our family relied on government aid" and

"Family members could not afford to see a doctor or to go to the hospital"), rated on a

4-point scale ranging from 1 (*never*) to 4 (*always*). Cronbach's α for the 11-item scale

of childhood resource insecurity was .84.

3.2.2   *Negative Life Events*

We used a 12-item checklist adapted from the Adolescent Self-rating Life

Events Checklist (ASLEC; Liu et al. 1997) to assess adversity in terms of

uncontrollable negative life events, with slight changes of wording. For each item,

participants indicated how many times they had encountered/witnessed a certain

negative event in their life. Examples of the items were "death of a close family

member or friend," "major personal illness/injury," and "parents' divorce." Since

negative life events' impact on individuals is cumulative (see Holmes and Rahe 1967)

but different events may not relate to each other, internal consistency measures are not

applicable here.

3.2.3   *Life-History Profile*

We administered a 4-item measure of future-oriented planning and a 4-item

measure of emotional attachment. Both measures were adapted from selected items in

the ALHB (Figueredo, 2007) but, unlike K-SF-42, focused more precisely on

psychosocial traits revealing individuals' intellectual investment and relational social

investment. The two measures have shown satisfying validity representing distinct

types of fitness investment (Zhu et al., 2018). The future-oriented planning measure, which represents intellectual investment, assessed tendencies to make plans, set goals, and prepare for the future (e.g., "I like to make plans for the future"; "I find it helpful to set goals for the near future"). The emotional attachment measure, which represents relational social investment, assessed the degree of interpersonal attachment/trust and emotional warmth of important relationships (e.g., "While growing up, I had a close and warm relationship with my mother"; "I am emotionally attached to my family and my friends, such that their happiness is also my happiness"). Cronbach's αs for the future-oriented planning and emotional attachment scales were .80 and .88, respectively.

3.2.4   *Preference for Dominant Leaders*

As in Study 1, we used the same Leadership Preference Task (Zhu, Chen, et al., 2021) to measure participants' preference for dominant versus prestigious leaders in hypothetical scenarios. Like in Study 1, a higher score in this task indicated that participants prefer dominant (rather than prestigious) leaders in more scenarios.

3.2.5   *Social Dominance Orientation*

Participants completed a 16-item Social Dominance Orientation (SDO) scale (Pratto et al., 1994, Appendix C) to assess their degree of preference for inequality among social groups or social classes. This scale was rated from 1 (*strongly disagree*) to 6 (*strongly agree*). Example items included: "It's OK if some groups have more of a chance in life than others", "Inferior groups should stay in their place". Cronbach's α for the SDO scale was .86.

3.2.6   *Power Distance Orientation*

Participants completed a scale of power distance orientation (PDO) adapted from Earley and Erez (1997). This scale included 8 items assessing participants' view of the relationship between superiors and subordinates in organizations (e.g., social groups, companies, and schools). Example items were: "in most situations, managers should make decisions without consulting their subordinates", "employees should not express disagreements with their managers". The items were rated on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Cronbach's α for the PDO scale was .90.

3.3 Results

The correlations among main variables and their descriptive statistics are reported in Table 4. Childhood resource insecurity and negative life events were positively correlated with each other ($r = .24$, $p < .001$). Future-oriented planning and emotional attachment also correlated positively with each other ($r = .54$, $p < .001$).

We examined a path model (Figure 2) with childhood resource insecurity and negative life events as predictors, future-oriented planning and emotional attachment as mediators, preference for dominant leaders as the dependent variable, and age, gender, and the SDO and PDO scores as covariates. Model estimation was conducted in the same way as in Study 1. Model fit statistics are omitted since the model was fully saturated.

Childhood resource insecurity was negatively associated with emotional attachment ($\beta = -.16$, $p < .001$), but not future-oriented planning ($\beta = -.04$, $p = .149$).

Negative life events were negatively associated with future-oriented planning (β = -.07, p = .032) and emotional attachment (β = -.13, p = .001). Future-oriented planning (β = -.08, p = .025) and emotional attachment (β = -.20, p < .001) both negatively predicted the preference for dominant leaders. Both age (β = .09, p = .001) and PDO scores (β = .12, p < .001) were positively associated with preferences for dominant leaders, whereas gender (β = -.03, p = .242) and SDO scores (β = -.02, p = .612) were not. After controlling for covariates, negative life events (β = .08, p = .005), but not childhood resource insecurity (β = .06, p = .080), had a positive direct effect on preferences for dominant leaders. Childhood resource insecurity was indirectly associated with preferences for dominant leaders through emotional attachment (standardized indirect effect = .03, p < .001, 95% CI [.02, .05]), but not future-oriented planning (standardized indirect effect = .004, p = .248, 95% CI [-.002, .01]). Negative life events were indirectly associated with preferences for dominant leaders through emotional attachment (standardized indirect effect = .03, p = .003, 95% CI [.01, .04]), but not future-oriented planning (standardized indirect effect = .01, p = .150, 95% CI [-.002, .01]).

3.4 Discussion

Consistent with Study 1, childhood resource insecurity was positively associated with emotional attachment, reflecting high relational social investment, but not with future-oriented planning, which indicates high intellectual investment. Also congruent with Study 1, both aspects of childhood adversity were linked to a preference for dominant over prestigious leaders through reduced relational social

investment but not through changes in intellectual investment. In contrast to the

findings in Study 1, future-oriented planning was associated with a low preference for

dominant leaders despite control for political attitudes in terms of SDO and PDO

scores in the analysis. Thus, the observed LH calibration effects cannot simply be

attributed to potential overlaps between the psychosocial aspects of participants' LH

profile and socially imparted political attitudes.

4   General Discussion

Leadership in human society involves intricate social mechanisms that curtail

dominant leaders' power (Boehm, 1993, 1999; van Vugt & von Rueden, 2020) and

promote prestigious leaders who are revered as social learning models (Henrich &

Gil-White, 2001; Henrich et al., 2015; Van Vugt & Smith, 2019). Within these social

mechanisms, followers can influence the effectiveness of leaders and even remove

those considered undesirable (Boehm, 1993, 1999). Children and adults distinguish

between dominance- and prestige-style leadership based on simple cues such as facial

features, voice pitch, and demeanor (Cheng et al., 2013; Kajanus et al., 2020; van

Vugt & Grabe, 2015). Research has reported that followers' leadership preferences are

contingent on the security of their societal environments (Nettle & Saxe, 2021) and

early personal experiences (e.g., Safra et al., 2017). Safra et al. (2017) suggested that

such effects may be mediated by LH calibration processes. This reasoning, although

touched on by other researchers studying the formation of social hierarchies in

children (e.g., Gilbert & Irons, 2005), has not been integrated into psychological

research on human LH profiles. Our study combined an examination of childhood

adversity, different aspects of LH profiles, and leadership preferences in hypothetical

scenarios, providing support for the LH calibration hypothesis. Further, in these two

studies, we consistently determined that LH profiles promoting relational social

investment constitute a critical pathway from childhood adversity to leadership

preferences. These effects were maintained even after age, sex, current economic

conditions, and political attitudes were controlled.

This finding can be understood through an integration of the literature on the

effects of childhood adversity on socioemotional development, LH calibration, and

the specific mechanisms of the aforementioned two leadership styles. Irons and

Gilbert (2005) argued that children must adopt specific roles in social hierarchies.

Adolescents with insecure attachment, which signifies early exposure to unsafe

environments, become more highly attuned to ranks of dominance than adolescents

with secure attachment and a benign childhood (Irons & Gilbert, 2005). These

individuals are also likely to receive less support from relatives and friends due to

lower trust in small and immediate (e.g., family) networks in the face of resource

scarcity and societal unpredictability (Zhu et al., 2021). Furthermore, individuals with

more social connections and support benefit more from social learning opportunities

shared within social networks centered around a prestigious leadership figure who is

otherwise equal to others (Henrich et al., 2015; von Rueden et al., 2014). With many

potential allies to rely on in conflicts (Boehm, 1999), such individuals benefit less

from the protection and conflict resolution functions of dominant leaders (Lausten &

Peterson, 2017; Lukaszewski et al., 2016).

In addition to relational social investment, we explored other LH-related pathways from childhood adversity to leadership preferences. No other aspects of an LH profile independently mediated the aforementioned relationship. However, to rule out these pathways and alternative explanations would be premature. In Study 1, INSIGHT, which represents intellectual investment in participants' LH profile, was not associated with leadership preferences. However, the future-oriented planning measure that we used in Study 2 was associated with a high preference for prestigious rather than dominant leaders, which is consistent with our prediction that intellectual investment should be associated with preferences for prestigious leaders. This apparent inconsistency may be attributable to measurement differences. The K-SF-42 subscale covered multiple traits that purportedly represent future-oriented fitness investment but not necessarily intellectual investment. Furthermore, research has demonstrated that not all types of intellectual investments are equally affected by childhood adversity. Mittal et al. (2015), for example, reported that unpredictable childhoods were associated with underperformance in relation to inhibition (overriding salient responses) but an improved performance in shifting (switching between tasks). Therefore, more research is required to distinguish among types of intellectual investment and their effects on leadership preferences.

We determined that neither romantic relationship stability (indicating long-term reproductive investment) nor general altruism (indicating generalized social investment) was associated with leadership preferences. However, childhood adversity was negatively associated with both aspects of the LH profile, which is

consistent with the LH perspective. Although research on mate preferences reported that prestigious individuals were preferred in long-term mating contexts (Snyder et al., 2008; Valentine et al., 2014), these preferences did not extend to leadership preference, indicating that people's social preferences are highly nuanced (Lausten & Peterson, 2015). Unlike the other psychosocial aspects of LH profiles, unreciprocated, general altruism may not be advantageous for followers and is thus unlikely to be associated with dominance- versus prestige-style leadership preferences. This finding supported the conceptual distinction between relational and generalized social investment. Finally, like Zhu, Chen et al. (2021), we did not find significant direct effects of childhood resource scarcity on leadership preferences (although Study 2 showed a weak direct effect of negative life events), even with much larger sample sizes. This supports the view that the LH calibration processes rely on many intermediate mechanisms (de Baca & Ellis, 2017), and most covariance between childhood adversity and leadership preference might be explained by these processes.

Overall, our findings are consistent with previous research findings that childhood adversity and present-oriented behavioral LH profiles are linked to a preference for authoritarian leadership (Safra et al., 2017; Zhu, Chen, et al., 2021). However, this research is the first to directly test the LH calibration hypothesis on leadership preferences (i.e., behavioral LH profiles as mediators between childhood adversity and leadership preferences). We also supported the speculation that not all components of behavioral LH profiles are equally involved: relational social investment appears to be the most salient mechanism. Thus, this work serves as

inspiration for future LH research in social psychology to adopt a fine-grained

approach that distinguishes among various components of fitness investment rather

than relying on a simple fast-slow continuum (Del Giudice, 2020). The manifestation

of LH profiles is a complex function of gene-environment interaction, sex, age, and

situational factors (Del Giudice et al., 2011). The formation of relatively stable

leadership preferences is unlikely to be controlled through a single fast-slow

continuum.

This research does not represent a comprehensive investigation of followers'

leadership preference, which is a function of evolutionary history, individual

development, physiological and psychological mechanisms, and context-specific

situations (van Vugt & Smith, 2019). The LH calibration hypothesis offers only one

explanation (that mainly relies on unconscious processes) for the complex

phenomenon of leadership preference in human society that does not negate conscious

strategies. For example, Boehm (1993, 1999) has convincingly demonstrated that

followers actively attempt to advance their own interests through conscious plotting,

going so far as to engage in coups against undesirable or deviant leaders. Such

manifestations of leadership preferences are less likely to be explained by the stable

LH profiles of participants than the more immediate contexts.

One limitation of our research relates to the measure of LH profiles.

Specifically, both studies relied on self-report measures of behavioral LH profiles. To

gain a fuller understanding of the LH mechanisms involved in the formation of

leadership preferences, future research should consider the inclusion of a wider range

of LH-related measures. This can include the timing of growth and reproductive events, physical health, and physiological measures (Sear, 2020; de Baca & Ellis, 2017). The dichotomous distinction between dominant and prestigious leaders in the leadership preference task is another limitation of the present research. We recognize that most leaders in society likely possess both dominant and prestigious traits (Brand & Mesoudi, 2019; Durkee et al., 2020). Moreover, many formalized leadership positions in modern institutions grant both coercive power (dominance) and information monopoly (prestige) to high-status individuals. Such dominant and prestigious characteristics of social hierarchies should be distinguished from the dominant and prestigious characteristics of leaders. Thus, further studies are needed to investigate whether mixed-style leadership is preferred over dominance- or prestige-style leadership using tasks that separate leader traits from characteristics of the social hierarchies. Finally, future research can also benefit from the use of more diverse samples from different socio-cultural backgrounds, given that subtle cultural differences might influence people's leadership preferences (Nettle & Saxe, 2021; Safra et al., 2017).

5   Conclusion

One possible reason that dominance- and prestige-style leadership coexist in society is that these leadership styles serve the different needs of followers, which tend to diverge as individuals grow up in different environments (Safra et al., 2017). We proposed and tested multiple pathways from childhood experiences to followers' leadership preferences in hypothetical scenarios in reference to different LH-related

mediators. On the basis of the consistent findings across our two studies, deficits in relational social investment constitute the most likely psychosocial mechanism explaining the support of dominant leaders in modern society among people who experience childhood adversity.

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Table 1

A summary of hypothesized pathways from childhood adversity to leadership preferences

Pathways	Relevant Aspects of Behavioral LH Profiles	Findings
Childhood adversity → Intellectual investment → Leadership preference	Insight, planning, and control (Study 1); future-oriented planning (Study 2)	Not supported
Childhood adversity → Relational social investment → Leadership preference	Relationship quality with parents; family/friends social contact and support (Study 1); emotional attachment with family and friends (Study 2)	Supported
Childhood adversity → Long-term reproduction investment → Leadership preference	Romantic partner attachment (Study 1)	Not supported
Childhood adversity → Generalized social investment	General altruism (Study 1)	Supported

Table 2

Background information of participants in Studies 1 and 2

	Study 1	Study 2
Gender		
Female	607 (67.6%)	591 (47.9%)
Male	291 (32.4%)	642 (52.1%)
Age range		
Younger than 20	262 (29.2%)	113 (9.2%)
20 – 29	441 (49.1%)	795 (64.5%)
30 – 39	8 (0.9%)	259 (21.0%)
40 – 49	148 (16.5%)	54 (4.4%)
50 – 59	38 (4.2%)	11 (0.9%)
60 or older	1 (0.1%)	1 (0.1%)
Occupation		
Students	675 (75.2%)	476 (38.6%)
Blue-collar workers	0 (0%)	128 (10.4%)
White-collar workers	85 (9.5%)	411 (33.3%)
Service workers	21 (2.3%)	49 (4.0%)
Freelance professionals	19 (2.1%)	50 (4.1%)
Small business owners	42 (4.7%)	63 (5.1%)
Corporate management	0 (0%)	26 (2.1%)
Others	56 (6.2%)	30 (2.4%)

Education (highest or current)

Primary school or below	24 (2.7%)	1 (0.1%)
Junior high school or equivalent	86 (9.6%)	38 (3.1%)
High school or equivalent	89 (9.9%)	145 (11.8%)
College degree	68 (7.6%)	228 (18.5%)
Undergraduate degree	620 (69.0%)	781 (63.3%)
Master's degree or higher	11 (1.2%)	40 (3.2%)
Total	**898**	**1233**

Table 3

Study 1: Correlations among main variables (domains of fitness investment indicated in the parentheses) and descriptive statistics

	1	2	3	4	5	6	7	8	9	10
1 Age	1									
2 Current economic condition	.20***	1								
3 Childhood economic condition	.00	.55***	1							
4 Insight, planning, and control (intellectual)	.09**	.04	.06	1						
5 General altruism (generalized social)	.23***	.23***	.19***	.43***	1					
6 Romantic partners attachment (long-term reproduction)	.18***	-.11**	-.02	.17***	-.01	1				
7 Father/mother relationship quality (relational social)	-.03	.26***	.21***	.25***	.31***	.13***	1			
8 Family social contact and support (relational social)	.00	.30***	.25***	.30***	.42***	.11**	.55***	1		
9 Friends social contact and support (relational social)	-.26***	.30***	.19***	.31***	.28***	.05	.39***	.58***	1	
10 Preference for dominant leaders	.07*	-.09*	-.07*	-.10**	-.10**	-.07*	-.21**	-.21**	-.22**	1

Descriptive Statistics

							*	*	*
Mean	25.80	2.93	3.09	4.48	3.56	3.94	3.00	2.54	2.79	1.64
Standard deviation	11.12	1.03	1.14	0.70	0.83	1.00	0.75	0.73	0.66	1.11

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 4

Study 2: Correlations among main variables (domains of fitness investment indicated in the parentheses) and descriptive statistics

	1	2	3	4	5	6	7	8
1 Age	1							
2 Childhood resource insecurity	-.01	1						
3 Negative life events	-.04	.24***	1					
4 Social dominance orientation	-.10**	.32***	.08**	1				
5 Power distance orientation	.05	.22***	-.04	.15***	1			
6 Future-oriented planning (intellectual)	.16***	-.07	-.12***	-.24***	.32***	1		
7 Emotional attachment (relational social)	.19***	-.18***	-.20***	-.21***	.26***	.62***	1	
8 Preference for dominant leaders	.05	.13**	-.13***	.08*	.05	-.17***	-.22**	1
Descriptive Statistics								
Mean	26.13	2.10	0.43	2.27	3.73	4.81	4.86	1.49

| Standard deviation | 6.90 | 0.59 | 0.43 | 0.75 | 1.07 | 0.84 | 0.94 | 1.21 |

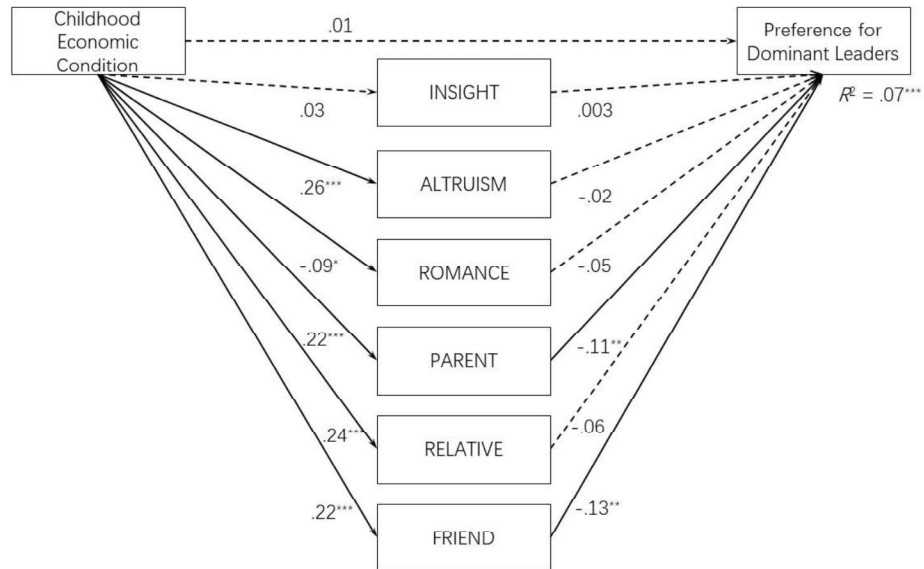$* p < .05$ $** p < .01$ $*** p < .001$

Figure 1 Study 1: Results of the path model. Covariates were omitted from the figure.

INSIGHT: insight, planning, and control; ALTRUISM: general altruism; ROMANCE:

romantic partner attachment; PARENT: mother/father relationship quality;

RELATIVE: family social contact and support; FRIEND: friends social contact and

support.

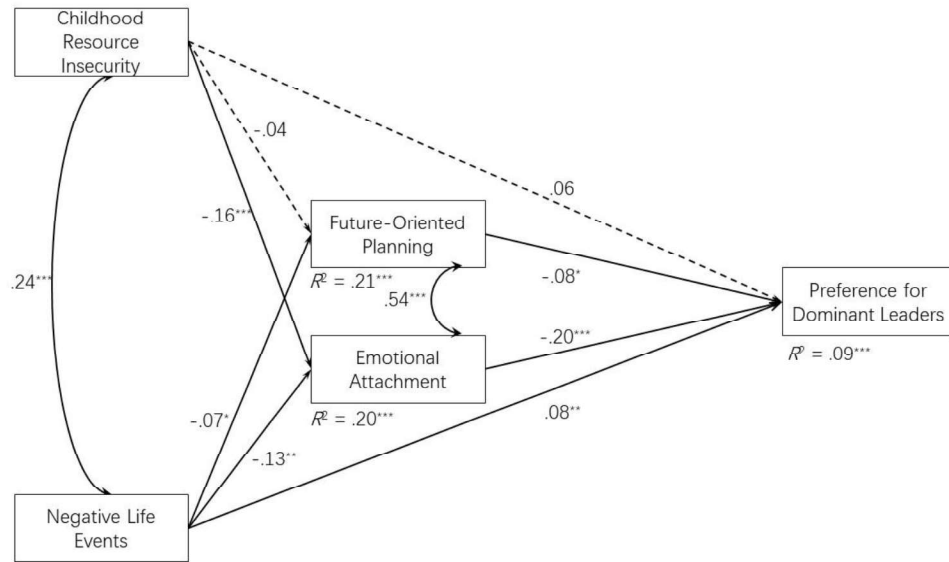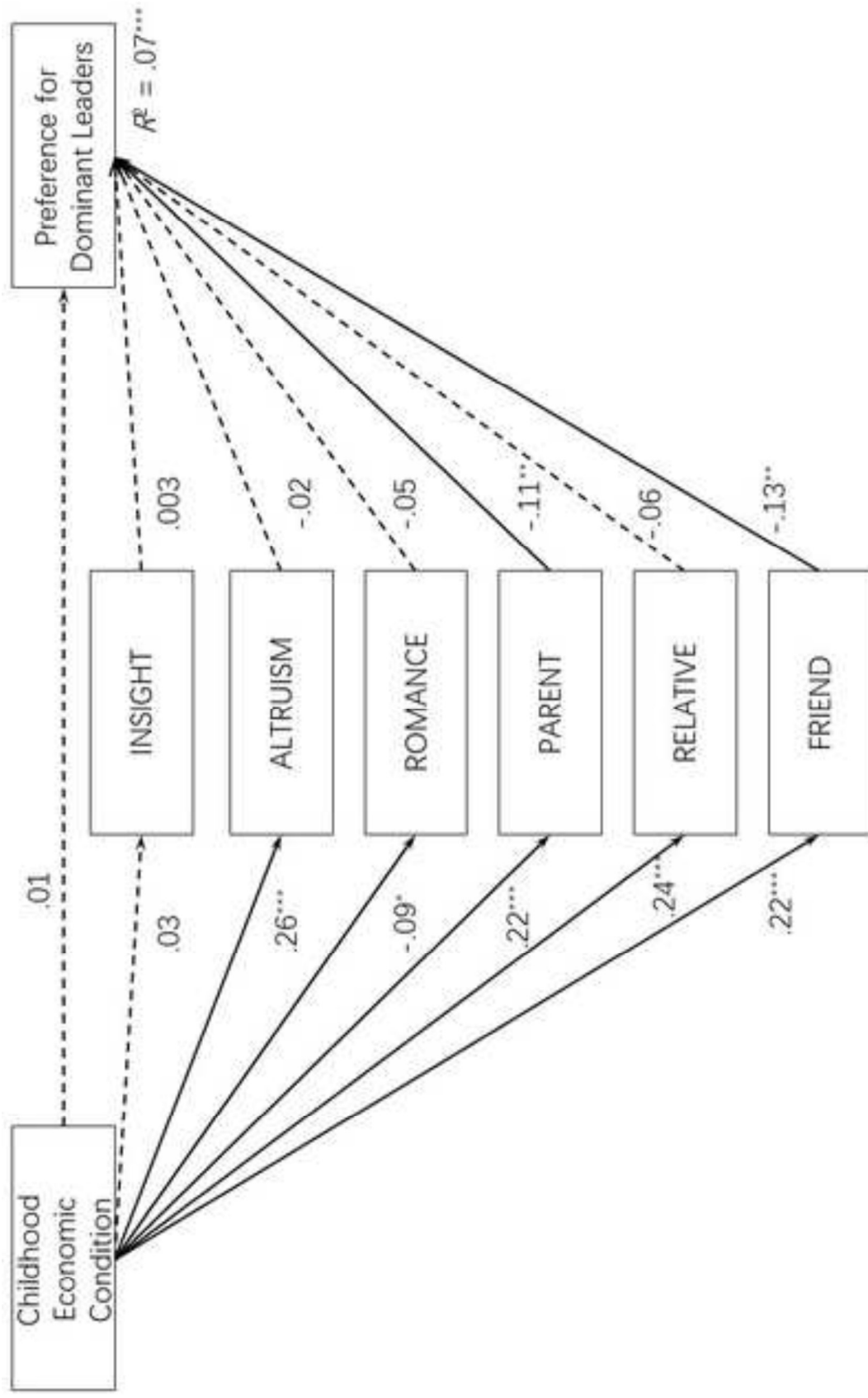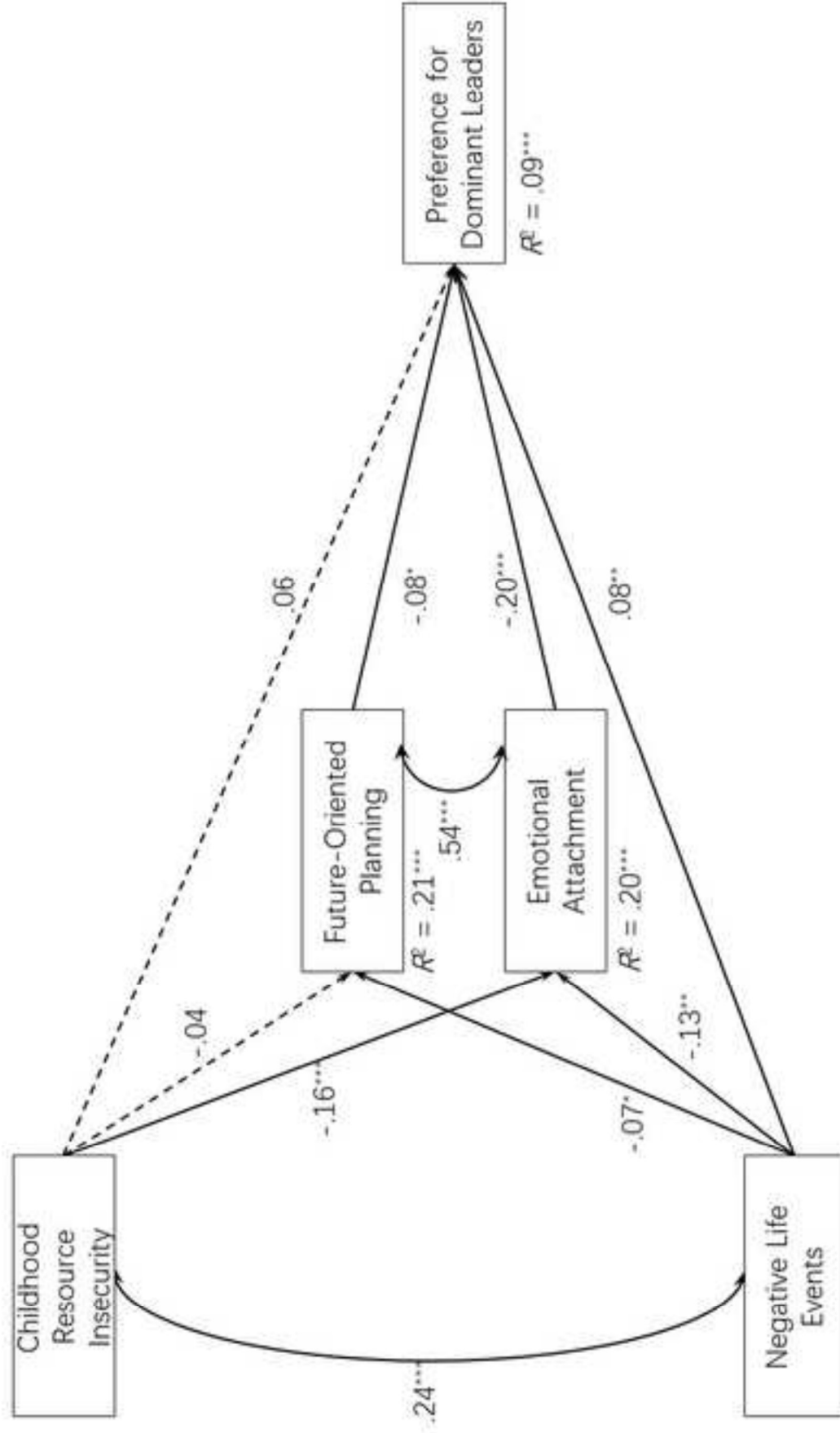$^*p < .05$ $^{**}p < .01$ $^{***}p < .001$

Figure 2 Study 2: Results of the path model delineating the relationships among childhood adversity, behavioral LH profiles, and preference for dominant leaders. Covariates were omitted from the figure.

$^*p < .05$ $^{**}p < .01$ $^{***}p < .001$

Figure 1

Preference for
Dominant Leaders

$R^2 = .07^{***}$

Childhood
Economic
Condition

INSIGHT

ALTRUISM

ROMANCE

PARENT

RELATIVE

FRIEND

.01

.003

-.02

-.05

-.11**

-.06

-.13**

.03

.26***

-.09*

.22***

.24***

.22***

Figure 2

Supplementary Material

This document contains extra information for the manuscript "Life-History

Calibration of Social Hierarchies: Childhood Adversity Predicts Leadership

Preference Through Relational Social Investment", including (a) within-China

regional comparisons in childhood adversity, behavioral life-history (LH) profiles

(Studies 1 and 2), as well as culturally related control measures (Study 2) and (b) a

sample scenario of the leadership preference task.

Within-China Regional Comparisons

The current study recruit participants from seven cities in Mainland China (two cities located in eastern China, two in southern China, and one city in northern, western, and south-western China, respectively). This is to ensure maximum representation of this overall sample of the Chinese population. However, it is important to note that (1) we did not employ a systematic sampling method and instead relied on internet convenient sampling of volunteers, (2) not all participants who were recruited from a certain city/province originally came from that city/province. As a result, the information about the location distribution of participants was not an accurate representation of regional variations (regional variations are not the focus of the present research). Nevertheless, assuming that regional cultures influence people living within the respective cultural environments, we do expect to find within-China variations similar to previous research (e.g., Talhelm et al., 2014).

Here, we present a preliminary analysis of regional variations. Following Talhelm et al. (2014), we divided our samples into two broad regional subsamples ("rice-farming south" and "wheat-farming north") according to participants' location information. Our eastern, southern, and south-western subsamples were part of the rice-farming south, and our northern and western subsamples were part of the wheat-farming north. We subsequently used independent t-tests to examine the differences between these two subsamples in childhood environments, behavioral LH profiles, and other psychological dimensions such as social dominance orientation (SDO) and

power distance orientation (PDO).

Descriptive statistics and results for regional differences in Studies 1 and 2 are reported in Tables S1 and S2, respectively. In Study 1, participants belonging to the rice-farming south ($n = 595$) and the wheat-farming north ($n = 303$) were similar in terms of childhood and current economic conditions, romantic partner attachment, and friends social contact and support, ps > .05. Participants belonging to the north subsamples scored slightly higher than participants belonging to the south subsamples in (1) insight, planning, and control ($p = .049$), (2) mother/father relationship quality ($p = .017$), and (3) family social contact and support ($p = .034$). Participants belonging to the north subsamples scored significantly higher than participants belonging to the south subsamples in general altruism, $p < .001$.

In Study 2, participants belonging to the rice-farming south ($n = 661$) and the wheat-farming north ($n = 572$) reported similar numbers of negative life events and similar degrees of social dominance orientation, ps > .05. Participants belonging to the north subsamples scored slightly higher than participants belonging to the south subsamples in childhood resource insecurity, $p = .036$. Participants belonging to the north subsamples scored significantly higher than participants belonging to the south subsamples in future-oriented planning, emotional attachment, and power distance orientation, ps < .001.

Although within-China regional variations do exist as expected, they seemed unlikely to affect our interpretation of the results in the present research. We examined alternative models in Studies 1 and 2 with the binary variables representing

participants' regional locations as an additional control variable. This did not change

any of the qualitative findings. Therefore, regional locations were not included in the

final results reported in this paper.

Table S1

Study 1: Comparisons between the South and the North in China

Variable	South [a] M (SD)	North [b] M (SD)	South - North t
Current economic condition	2.91 (1.00)	2.97 (1.09)	-0.93
Childhood economic condition	3.07 (1.12)	3.15 (1.16)	-0.96
Insight, planning, and control	4.44 (0.68)	4.54 (0.72)	-1.98[*]
General altruism	3.48 (0.83)	3.72 (0.81)	-4.27[***]
Romantic partners attachment	3.90 (1.01)	4.00 (0.99)	-1.34
Father/mother relationship quality	2.96 (0.73)	3.08 (0.77)	-2.40[*]
Family social contact and support	2.50 (0.71)	2.61 (0.77)	-2.13[*]
Friends social contact and support	2.78 (0.64)	2.81 (0.71)	-0.76

Note. [a] $n = 595$; [b] $n = 303$

[*] $p < .05$ [***] $p < .001$

Table S2

Study 2: Comparisons between the South and the North in China

Variable	South [a]	North [b]	South - North
	M (*SD*)	*M* (*SD*)	*t*
Childhood resource insecurity	2.06 (0.55)	2.13 (0.62)	-2.10*
Negative life events	0.43 (0.36)	0.43 (0.49)	-0.09
Future-oriented planning	4.72 (0.82)	4.93 (0.85)	-4.40***
Emotional attachment	4.74 (0.95)	5.00 (0.91)	-4.68***
Social dominance orientation	2.25 (0.71)	2.29 (0.80)	-0.93
Power distance orientation	3.63 (1.01)	3.85 (1.12)	-3.58***

Note. [a] $n = 661$; [b] $n = 572$

* $p < .05$ *** $p < .001$