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Life History strategy and Evaluative Self-Assessment

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ABSTRACT

Life History (LH) theory describes the existence of individual differences in the optimal allocation of inherently limited bioenergetic and material resources towards different types of reproductive-enhancing activities. LH theory predicts that slow LH (“High-K”) individuals are biased toward allocating resources toward enhancing the phenotypic quality (e.g., physical and mental health) of oneself and one’s offspring. Sociometer theory suggests that self-esteem tracks an individual’s level of social acceptance and inclusion. We examined the hypothesis that slow LH strategy positively predicts a more positive Evaluative Self-Assessment due to enhanced phenotypic quality. Participants completed questionnaires measuring their Life History (LH) strategies and a variety of measures of Self-Assessment (perceived mate value, perceived mating success, social economic exchange, positive and negative adjectives, global self-esteem, and collective self-esteem). An Exploratory Factor Analysis indicated that the measures of Evaluative Self-Assessment were best represented as a single latent factor. Slow LH strategy correlated moderately and positively with this Evaluative Self-Assessment factor. This relationship was not accounted for by socially desirable responding (self-deceptive enhancement or impression-management), sex, or age of participants. Consistent with Sociometer theory, we suggest that slow LH strategists exhibit high perceived self-worth due to increased social prestige and, relatedly, enhanced phenotypic quality.

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1. Introduction

Recent research on self-esteem has suggested that there may be differential effects of functionally distinct domains of self-esteem rather than a simple relationship between a global self-esteem trait and a behavioral outcome (Kavanagh, Robins, & Ellis, *in press*; Kirkpatrick, Waugh, Valencia, & Webster, 2002). Various measures aiming to measure such apparently distinct domains of self-esteem, which will be referred to here as Evaluative Self-Assessment (ESA), have been independently created (e.g., see Luhtanen & Crocker, 1992). One such potentially distinct domain of ESA is perceived mate value, which is a construct derived from evolutionary psychology. Mate value is a theoretically quantifiable estimate of an individual’s value to a sexual or romantic partner as a social and sexual partner: his or her phenotypic quality (Kirsner, Figueredo, & Jacobs, 2003).

Recent findings from an ongoing research program on individual differences in human Life History (LH) strategy (i.e., the “K-Factor”) (see Figueredo, Vásquez, Brumbach, & Schneider, 2004, 2007; Figueredo et al., 2005, 2006) indicate that the *Mini-K*, a short-form measure of slow (“High-K”) LH strategy (Figueredo et al., 2006), regularly correlates moderately with self-perceived mate value

(Gladden, Sisco, & Figueredo, 2008) as measured by the Mate Value Inventory (MVI; Kirsner et al., 2003). Life History (LH) theory, which will be described in more detail later, predicts the existence of individual differences in the allocation of limited bioenergetic and material resources toward different kinds of activities that will optimally enhance an individual’s reproductive success. According to the theory, investing resources in one component of fitness (e.g., mating effort) detracts from the resources available to invest in other components of fitness (e.g. parental effort). Further, investing more heavily in different fitness components is more adaptive for individuals who find themselves in particular conditions. For example, it would be maladaptive for individuals developing under unstable, unpredictable, and uncontrollable conditions (where long-term survival is uncertain) to invest heavily in somatic effort (effort aimed at enhancing phenotypic quality and long-term survival) because such investments would tend not to result in a reproductive payoff due to the risk for early mortality. Conversely, developing in stable, predictable, and controllable conditions allows high resource investments in somatic effort to result in fitness payoffs at a later time. Slow LH strategies are expected to be favored by such stable, predictable, controllable developmental environments and are characterized by high somatic effort, high parental and nepotistic effort, and low mating effort relative to “fast” strategies. Thus, LH theory predicts that individuals scoring high on the *Mini-K* (i.e. slow LH or High-K strategists) are biased toward allocating

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resources toward enhancing the phenotypic quality (e.g., physical and mental health) of oneself (through somatic effort) and one's offspring (through parental effort). Therefore, the observed positive correlation between the *Mini-K* and *MVI* may reflect the fact that slow LH individuals exhibit enhanced phenotypic quality.

The initial purpose of the present study was to examine whether the initial sampling of *MVI* items was biased with respect to slow LH strategy. That is, this study addressed whether the previously observed relationship between slow LH strategy and perceived mate value was an artifact of the particular measure used to measure self-reported mate value, the *MVI*. Alternatively, slow LH strategy could correlate with a diverse variety of measures (domains) of ESA, possibly indicating increased global self-assessment and increased phenotypic quality in slow LH individuals.

2. Sociometer theory

Sociometer theory suggests that an individual's self-esteem is the result of an evolved system which assesses one's level of social acceptance by monitoring the quality of one's social relationships (Leary, 1999; Leary, Terdal, Tambor, & Downs, 1995). According to the theory, individuals are motivated to avoid social rejection and devaluation because high social standing, inclusion, or prestige enables access to mates and other reproductively relevant resources that would be important in our evolutionary history. Thus, high perceived self-worth is predicted to track real and potential reactions of other people. Individuals high in social prestige and inclusion are expected to have high self-esteem.

To avoid biasing the results of this study by relying exclusively on any particular and theoretically-specific measure of ESA, such as the measures of perceived social inclusion commonly used in Sociometer theory, we sampled from the evolutionary and social psychology literature to assemble a battery of theoretically heterogeneous measures that were independently created for measuring conceptually distinct and purportedly domain-specific constructs related to self-esteem (e.g., mate value, perceived mating success, social economic exchange, positive and negative adjectives, global self-esteem, and collective self-esteem).

3. Life History theory

Life History (LH) theory predicts tradeoffs in the optimal allocation of an organism's inherently limited bioenergetic and material resources throughout the life course. In particular, organisms must tradeoff between various activities that contribute to reproductive fitness: (1) reproductive vs. somatic effort (2) present vs. future reproduction, (3) quantity vs. quality of offspring, and (4) mating vs. parental effort (Ellis, Figueredo, Brumbach, & Schlomer, 2009; Kaplan & Gangestad, 2005). Each of these tradeoffs is thought to be interrelated with the others. According to LH theory, selection works against uncoordinated LH allocation "decisions" and, relatedly, uncoordinated sets of LH traits, which results in a single "fast-slow" continuum along which species and individuals may be placed. The theory predicts both between-species and within species differences in how "fast" or "slow" a LH strategy will be under particular conditions. "Slow" strategies are so named because they are characterized by exhibiting later sexual maturity, delayed reproduction, larger inter-birth intervals between offspring, and later mortality relative to "fast" strategies. Consistent with this strategy, slow strategists preferentially allocate bioenergetic and material resources toward somatic effort over reproductive effort and parental (and nepotistic) effort over mating effort. Such a strategy emphasizes investment in the long-term survival of individual organisms over the production of new ones whether that individual is the self, one's offspring, or one's kin (Figueredo et al., 2006).

The precise developmental mechanisms that influence an organism's levels of resource allocations towards somatic effort are unknown, but in order to function adaptively such mechanisms would, presumably, need to be responsive to (1) relevant environmental conditions (e.g. mortality risk) and (2) one's own phenotypic condition (e.g. phenotypic quality or health). For the latter mechanism to be operative, individuals would need to possess mechanisms designed to self-assess one's own phenotypic condition. The output of such self-assessment mechanisms would also be expected to somehow guide adaptive behavior. Individuals of low phenotypic condition that failed to self-assess phenotypic quality risk investing highly in somatic effort and allocating valuable bioenergetic and material resources in a manner that tends not to lead to a reproductive (evolutionary) payoff.

Consistent with LH theory, Figueredo et al. (2004), Figueredo et al. (2005), Figueredo et al. (2006), Figueredo et al. (2007), Gladden, Figueredo, and Jacobs (2009) and Gladden et al. (2008) have found that a diverse set of traits (planning, mother/father relationship quality, support and contact with family and friends, attachment to romantic partners, altruism towards one's kin, friends, and community, and religiosity) cluster into a single latent *K* (slow LH) factor. Indicators of this slow LH strategy include altruism toward kin, toward friends, and toward the larger community. Such altruism makes sense as part of a slow LH strategy because altruism or cooperation likely facilitates long-term survival by enhancing one's social standing and acceptance by the group. Thus, Sociometer theory would predict that the elevated social prestige and inclusion of slow LH would lead such individuals to have enhanced self-esteem.

Furthermore, since LH strategy has been found to be heritable ($h^2 = .65$; Figueredo et al., 2004), the increased amounts of parental and nepotistic effort which are expected to be received by slow LH individuals would likely foster the development of greater phenotypic quality, as would their own allocation of increased amounts of somatic effort in their own growth and maintenance. Empirically, the slow LH factor is indeed correlated (both phenotypically and genetically) with increased mental and physical health, documenting that individuals with slow LH exhibit enhanced phenotypic quality (Figueredo et al., 2004; Figueredo et al., 2007). Enhanced phenotypic condition is expected to be associated with success in social competition for social inclusion, prestige, and for attracting desirable mates (Miller, 2000). Social and emotional intelligence, for example, could be signals of good genetic quality and would be expected to result in increased social acceptance (Miller, 2000). Thus, high Evaluative Self-Assessment (ESA) may result from a relatively accurate assessment of good phenotypic quality. If slow LH individuals exhibit relatively increased phenotypic quality and increased phenotypic quality increased social approval and prestige, Sociometer theory predicts that slow LH individuals will also exhibit high (i.e., more positive) ESA. We tested this prediction here.

4. Method

4.1. Participants

One hundred and thirty seven undergraduate students, 30 males and 107 females, participated. Participants were enrolled in an Introductory Psychology course. The mean age for the sample was 18.83 years ($SD = 1.77$).

4.2. Procedure

Participants completed a series of self-report questionnaires measuring their LH strategies, perceived mate value, perceived mating success, various theoretically heterogeneous measures of

collective and individual self-esteem, and measures of socially desirable responding.

4.3. Measures of Life History strategy

The Arizona Life-History Battery (ALHB) (Figueredo, 2007) is a battery of self-reported cognitive and behavioral indicators of LH strategy compiled and adapted from various original sources. These self-report psychometric indicators measure individual differences along various complementary facets of a coherent and coordinated LH strategy, as specified by LH theory, and converge upon a single multivariate latent construct, the *K-Factor*. High scores indicate a “slow” (High-*K*) LH strategy on the “fast–slow” (*r–K*) continuum. Because the *Mini-K* was at first thought to be confounded with self-reported mate value, as assessed by the *MVI*, that measure was omitted from the ALHB for the purposes of the present study. In the present study, the Cronbach's alphas for the individual indicators of the ALHB (not including the *Mini-K*) ranged from .82 to .96, as is typically the case for these subscales. Based on previous results indicating a single latent LH factor (Figueredo et al., 2004; Figueredo et al., 2005; Figueredo et al., 2006; Figueredo et al., 2007; Gladden et al., 2009), we constructed a unit-weighted *slow LH* scale (Gorsuch, 1983), composed of the 7 included subscales of the ALHB, by taking the unweighted average of the standardized indicators.

4.4. Measures of Evaluative Self-Assessment

Mate Value Inventory (Kirsner et al., 2003) is a 17-item measure of self-perceived possession of qualities that are considered desirable in a romantic or sexual partner, collected from the evolutionary and social psychological literature. The scale, which ranges from –3 (Extremely Low on this characteristic) to +3 (Extremely High on this characteristic), includes items such as “Good sense of humor” and “intelligent”.

Mate Value Scale (Williams, 1999) is a 12-item measure of self-perceived romantic and mating success with the opposite sex. The scale, which ranged from –3 (Strongly Disagree) to +3 (Strongly Agree), includes items such as “I do not find it easy to meet people of the opposite sex” (reversed scored item).

Self-Adjective Checklist (Gough & Heilbrun, 1983) is a 27-item measure of self-perceived possession of 27 different positive and negative characteristics that one person might have available to offer to another. The items consist of adjectives including “Dull” and “Sympathetic” and participants rate themselves on a scale of –3 (Extremely Low on this characteristic) to +3 (Extremely High on this characteristic).

Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a 10-item measure of general (global) self-esteem. The scale, which ranges from +1 (Strongly Disagree) to +4 (Strongly Agree), includes items such as “I feel that I am a person of worth, at least of an equal basis with others” and “I certainly feel useless at times” (reversed item).

Social Economic Exchange Scale (Pelham & Swann, 1989) is a 15-item measure of perceived possession of a variety of socially valued abilities and personality characteristics. This measure represents self-perception on attributes someone thinks they have to offer in exchange for resources from another and how they rank themselves in standing against their peers. The scale, which ranges from –3 (Extremely Low on this characteristic) to +3 (Extremely High on this characteristic), asks participants to rate themselves relative to other college students of their own age and sex and it includes items such as “Intellectual/academic ability” and “Creativity”.

Collective Self-Esteem Scale (Luhtanen & Crocker, 1992) is a 16-item measure of perceived social acceptance (i.e. inclusion/exclusion) and positivity of one's social groups. It was created to measure esteem that relates to one's social identity rather than his or

her personal identity. The scale, which ranges from –3 (Extremely Low on this characteristic) to +3 (Extremely High on this characteristic), includes items such as “I am a worthy member of the social groups I belong to” and “Overall, my social groups are considered good by others”.

The Cronbach's alphas for each measure of Evaluative Self-Assessment are presented in Table 1.

Balanced Inventory of Desirable Responding (BIDR-6) (Paulhus, 1991) is a 40-item measure with two subscales commonly used to statistically control for socially desirable responding: (1) Self-Deceptive Enhancement (SDE) and (2) Impression Management (IM). The scales, which range from –3 (Disagree Strongly) to +3 (Agree Strongly) contain items such as “I am fully in control of my own fate.” (SDE) and “I never swear.” (IM). The Cronbach's alphas for the two scales were 0.70 (SDE) and 0.67 (IM).

4.5. Statistical analyses

Statistical Analyses were performed using SAS version 9.1. Proc GLM was used to statistically control the variance associated with self-deceptive enhancement, impression management, and respondent sex and age, which are known to influence reported self-esteem (Brase & Guy, 2004). We performed all subsequent analyses using the residuals of each measure of LH strategy and Evaluative Self-Assessment after statistically controlling for these potential confounds. Exploratory Factor Analyses using PROC FACTOR were performed among the measures of Evaluative Self-Assessment to determine if these measures also clustered together into a single common factor or if different measures broke off into multiple psychometrically distinct factors. Principal axis estimation used squared multiple correlations as initial communality estimates. Cumulative and incremental proportions of variance accounted for and subjective scree plots were used to determine the optimal number of factors to be retained. We took the average of the standardized scores of the salient indicators of each latent common factor identified to estimate unit-weighted factor scales (Gorsuch, 1983). PROC CORR provided Cronbach's Alphas and bivariate correlations among the measures.

5. Results

An Exploratory Factor-Analysis (EFA) among the various theoretically heterogeneous measures of Evaluative Self-Assessment indicated that a single-factor solution, which explained 84% of the reliable variance, was optimal. We labeled this latent factor *Evaluative Self-Assessment*. The unit-weighted factor scales for *Evaluative Self-Assessment* and for *slow LH* were statistically significantly correlated ($r = .43, p < .0001$).

To control for potentially confounding variables associated with *slow LH* and *Evaluative Self-Assessment*, we statistically controlled the covariance between each indicator of the two factors and Self-Deceptive Enhancement (SDE), Impression Management

Table 1
Cronbach's Alphas and factor loadings of Evaluative Self-Assessment factor on indicators.

| | Cronbach's Alpha | Evaluative Self-Assessment |
|--------------------------------|------------------|----------------------------|
| Mate Value Inventory | .80 | .66 |
| Mate Value Scale | .85 | .40 |
| Self-Adjectives Checklist | .80 | .49 |
| Rosenberg Self-Esteem Scale | .88 | .64 |
| Social Economic Exchange Scale | .84 | .74 |
| Collective Self-Esteem Scale | .85 | .51 |

(IM), respondent sex, and respondent age. Using the residuals for each measure, we repeated the EFA of the indicators of *Evaluative Self-Assessment*. This reanalysis of the residualized measures of *Evaluative Self-Assessment* again indicated that a single-factor solution, which explained 78% of the reliable variance, was optimal. The *Evaluative Self-Assessment* factor loadings on each of its residualized indicator variables are presented in Table 1. The unit-weighted factor scales constructed from the residualized indicators of *slow LH* and *Evaluative Self-Assessment* were statistically significantly correlated ($r = .51, p < .0001$). This indicated that the correlation between the two factors actually *increased*, rather than decreased, after controlling for various sources of socially desirable self-presentation bias.

6. Discussion

Each measure of self-perceived mate value and self-esteem was loaded upon by a single common latent factor, indicating that *Evaluative Self-Assessment* (ESA) is best represented as a single latent trait. This suggests that each of the purportedly distinct measures of ESA were not psychometrically distinguishable. Thus, these measures were best represented as a single domain-general trait rather than multiple independent ones. Despite being independently created for measuring conceptually distinct constructs related to ESA (e.g., mate value, perceived mating success, social economic exchange, global self-esteem, collective self-esteem), each measure apparently converged with all the others to a considerable degree. This does not imply that multiple modular (domain-specific) mechanisms cannot be involved in one's self-assessment, but it does indicate that each of these mechanisms may tend to converge on the same approximate result.

Slow LH strategy correlated positively and moderately with the general ESA factor. This suggests that high ESA (estimated self-worth) is a characteristic of *slow LH* individuals and is not an artifact of biased item selection during development of the Mate Value Inventory. The relationship between *slow LH* strategy and high self-regard is not specific to a particular measure. Rather, this relationship is apparently robust across independently created indicators of ESA which were designed to measure supposedly distinguishable constructs. This absolves the Mate Value Inventory of having some unique bias with respect to the Arizona Life-History Battery. *Slow LH* individuals report high perceived ESA regardless of the measure used. Further, this relationship was not accounted for by socially desirable responding, including impression management or self-deceptive enhancement, or responses linked with participants' biological sex or age. Indeed, the relationship between *slow LH* and ESA was slightly strengthened after statistically controlling for each of these potential confounds.

One interpretation of this result is that *slow LH* individuals exhibit high ESA because they are accurately assessing their own enhanced phenotypic quality. This is consistent with the predictions of LH theory that *slow LH* individuals are biased towards relatively increased somatic effort and parental effort. Such resource allocations are aimed at enhancing survival probability of individual organisms and the phenotypic quality of their offspring rather than producing a large number of offspring and investing less toward enhancing offspring quality (Figueredo et al., 2006; Kaplan & Gangestad, 2005). Therefore, *slow LH* individuals are expected to exhibit increased phenotypic quality compared to *fast LH* individuals. This enhanced phenotypic quality is attributable to the increased somatic effort that they expend upon their own growth and maintenance as well as the increased parental and nepotistic effort that they receive from their *slow LH* parents and kin, given the high heritability of LH strategy in humans ($h^2 = .65$; Figueredo et al., 2004).

Consistent with this, *slow LH* strategies are known to correlate with indicators of phenotypic quality such as increased mental and physical health (Figueredo et al., 2004; Figueredo et al., 2007). Thus, positive social feedback from conspecifics (including from parents, kin, social partners, and sexual partners) may be tracking high phenotypic quality. One's level of self-regard may also developmentally influence the level of investment an individual allocates toward somatic effort. Without a mechanism for detecting one's own phenotypic condition and calibrating somatic effort in accordance with that condition, organisms of low phenotypic quality risk maladaptively squandering resources on somatic effort that could have been more adaptively allocated toward another component of fitness (e.g., reproductive effort). That is, not all resource investments are equally likely to result in a fitness payoff across all phenotypic and environmental conditions. Another possibility is that high somatic-effort results in high ESA, but that the outcome of ESA does not influence future investments toward somatic-effort. Whether ESA influences allocations toward somatic-effort (vs. reproductive effort) needs to be tested in the future.

Our result can be seen as consistent with Sociometer theory (Leary, 1999; Leary et al., 1995) because *slow LH* individuals may exhibit enhanced ESA as a result of experiencing relatively increased success in competition for social inclusion and prestige. One possible way in which individuals may self-assess their own phenotypic quality is through the social reactions they receive from other individuals. For example, one component of phenotypic quality likely includes social intelligence (Miller, 2000). Social and emotional intelligence is likely critical for acceptance by one's social group and for the development and maintenance of social relationships. Thus, social acceptance or rejection may provide feedback to the individual about his or her own self-worth, as suggested by Sociometer theory (Leary, 1999; Leary et al., 1995) and perceived self-worth may track phenotypic quality. Our present results suggest that *slow LH* individuals will tend to experience high levels of social acceptance and prestige. This is exactly what might be expected considering that *slow LH* individuals are predicted to be characterized by high levels of altruism towards their social group (Figueredo et al., 2007; Rushton, 1985) and obedience to social and moral rules (Gladden, Welch, Figueredo, & Jacobs, 2009).

7. Future research

The possibility that high self-regard is the output of a mechanism by which *slow LH* individuals are accurately evaluating their high phenotypic quality is a mere working hypothesis and must be tested further. If self-esteem adaptively informs an individual about its own phenotypic value as a mating or social partner, the precise ontogenetic mechanisms by which this occurs must be elucidated and shown to somehow be linked with adaptively relevant behavioral outcomes (e.g. influencing mate-choice). Understanding how self-esteem may guide future adaptive behavior is another interesting area for future research.

References

- Brase, G. L., & Guy, E. C. (2004). The demographics of mate value and self esteem. *Personality and Individual Differences*, 36, 471–484.
- Ellis, B. J., Figueredo, A. J., Brumbach, B. H., & Schlomer, G. L. (2009). Mechanisms of environmental risk: The impact of harsh versus unpredictable environments on the evolution and development of life history strategies. *Human Nature*, 20, 204–268.
- Figueredo, A. J. (2007). The Arizona Life History Battery. Unpublished manuscript.
- Figueredo, A. J., Vásquez, G., Brumbach, B. H., & Schneider, S. M. R. (2004). The heritability of life history strategy: The K-factor, covitality, and personality. *Social Biology*, 51, 121–143.
- Figueredo, A. J., Vásquez, G., Brumbach, B. H., & Schneider, S. M. R. (2007). The K-factor, covitality, and personality: A psychometric test of life history theory. *Human Nature*, 18, 47–73.

- Figueredo, A. J., Vasquez, G., Brumbach, B. H., Schneider, S. M., Sefcek, J. A., Tal, I., et al. (2006). Consilience and Life History theory: From genes to brain to reproductive strategy. *Developmental Review*, 26, 243–275.
- Figueredo, A. J., Vasquez, G., Brumbach, B. H., Sefcek, J. A., Kirsner, B. R., & Jacobs, W. J. (2005). The K-factor: Individual differences in life history strategy. *Personality and Individual Differences*, 39, 1349–1360.
- Gladden, P. R., Figueredo, A. J., & Jacobs, W. J. (2009). Life history strategy, psychopathic attitudes, personality, and general intelligence. *Personality and Individual Differences*, 46, 270–275.
- Gladden, P. R., Sisco, M., & Figueredo, A. J. (2008). Sexual coercion and life history strategy. *Evolution and Human Behavior*, 29, 319–326.
- Gladden, P. R., Welch, J., Figueredo, A. J., & Jacobs, W. J. (2009). Moral intuitions and religiosity as spuriously correlated life history traits. *Journal of Evolutionary Psychology*, 7, 167–184.
- Gorsuch, R. L. (1983). *Factor analysis*. Hillsdale, NJ: Erlbaum.
- Gough, H. G., & Heilbrun, A. B. Jr., (1983). *The adjective check list manual*. Palo Alto, CA: Consulting Psychologists Press.
- Kaplan, H. S., & Gangestad, S. W. (2005). Life history theory and evolutionary psychology. In D. M. Buss, N. J. Hoboken (Eds.), *The handbook of evolutionary psychology* (pp. 68–95). John Wiley and Sons, Inc.
- Kavanagh, P. S., Robins, S., & Ellis, B. J. (in press). The Mating Sociometer: A regulatory mechanism of mating aspirations. *Journal of Personality and Social Psychology*.
- Kirkpatrick, L. A., Waugh, C. E., Valencia, A., & Webster, G. D. (2002). The functional domain specificity of self-esteem and the differential prediction of aggression. *Journal of Personality and Social Psychology*, 82, 756–767.
- Kirsner, B. R., Figueredo, A. J., & Jacobs, W. J. (2003). Self, friends, and lovers: Structural relations among Beck depression inventory scores and perceived mate values. *Journal of Affective Disorders*, 75, 131–148.
- Leary, M. R. (1999). Making sense of self-esteem. *Current Directions in Psychological Science*, 8, 32–35.
- Leary, M. R., Terdal, S. K., Tambor, E. S., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The Sociometer hypothesis. *Journal of Personality and Social Psychology*, 68, 518–530.
- Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and Social Psychology Bulletin*, 18, 302–318.
- Miller, G. F. (2000). *The mating mind: How sexual choice shaped the evolution of human nature*. New York: Doubleday.
- Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 17–59). New York: Academic Press.
- Pelham, B. W., & Swann, W. B. (1989). From self-conceptions to self worth: The sources and structure of self-esteem. *Journal of Personality and Social Psychology*, 57, 672–680.
- Rosenberg, M. (1965). *Society and the adolescent self-implosion*. Princeton, NJ: Princeton University Press.
- Rushton, J. P. (1985). Differential K theory: The sociobiology of individual and group differences. *Personality and Individual Differences*, 6, 441–452.
- Williams, T. E. (1999). *Domain-specificity of self-esteem*. Unpublished master's thesis. Williamsburg, VA: College of William and Mary.