

# **REPRODUCTIVE STRATEGY AND SEXUAL CONFLICT: SLOW LIFE HISTORY STRATEGY INHIBITS NEGATIVE ANDROCENTRISM**

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Recent findings indicate that a slow Life History (LH) strategy factor is associated with increased levels of Executive Functioning (EF), increased emotional intelligence, decreased levels of sexually coercive behaviors, and decreased levels of negative ethnocentrism. Based on these findings, as well as the generative theory, we predicted that slow LH strategy should inhibit negative androcentrism (bias against women). A sample of undergraduates responded to a battery of questionnaires measuring various facets of their LH Strategy, (e.g., sociosexual orientation, mating effort, mate-value, psychopathy, executive functioning, and emotional intelligence) and various convergent measures of Negative Androcentrism. A structural model that the data fit well indicated a latent protective LH strategy trait predicted decreased negative androcentrism. This trait fully mediated the relationship between participant biological sex and androcentrism. We suggest that slow LH strategy may inhibit negative attitudes toward women because of relatively decreased intrasexual competition and intersexual conflict among slow LH strategists.

**Keywords:** Life History, Androcentrism, Sexual Conflict

Different life history (LH) strategies have been associated, both theoretically and empirically, with different sexual and social strategies, presumably based on different cognitive schemata that organize one's sexual and social relationships along different lines and different presumptions about the nature of those relationships (Figueredo & Jacobs, 2010). In humans, *slow* LH strategies have been associated with *mutualistic* social strategies, which are based on cognitive schemata that presuppose *convergent interests* with sexual and social partners and possibilities for mutually beneficial cooperation in the service of those common goals. In contrast, human *fast* LH strategies have been associated with *antagonistic* social strategies, which are based on cognitive schemata that presuppose *divergent interests* with sexual and social partners and the potential presence of mutually destructive competition in the inevitable conflict over those contrary objectives (Malamuth, 1996, 1998).

Slow LH strategy has therefore been hypothesized to be *inhibitory* toward antisocial and rule-breaking behaviors. Conversely, fast LH strategy has been hypothesized to be at least *permissive* of these behaviors and perhaps, even *promotive* of them (e.g., Rushton, 1985; Ellis, 1988, 1989a, 1989b; Figueredo et al., 2006; Figueredo, Gladden, & Hohman, 2012b; Gladden, Sisco, & Figueredo, 2008; Gladden, Welch, Figueredo, & Jacobs, 2009; Gladden, 2011).

Figueredo, Andrzejczak, Jones, Smith-Castro, and Montero-Rojas (2011) recently reported a relationship between slow LH strategy and reduced levels of self-reported negative ethnocentrism. This indicated that slow LH appears to inhibit not only intersexually aggressive behaviors such as sexual coercion (Gladden et al., 2008) and intimate partner aggression (Figueredo, Gladden, & Beck, 2012a), but also inhibits tendencies towards intergroup bias, which would seem to involve some intrasexual aggressiveness as well. However, although the two latent factors representing slow LH strategy that were constructed as predictors in the previous studies of sexually coercive behavior and of negative ethnocentrism shared some of their manifest indicators, the overlapping sets of convergent indicators used to measure these two “protective” common factors were not exactly identical. Each also contained some unique indicators that were not included in the other study.

The primary methodological objectives of the present study were therefore to determine if these two partially overlapping subsets of convergent indicators were measuring the same latent trait, with the same internal hierarchical structure. If the two latent common factors found in both of the previous studies (inhibiting sexual coercion and negative ethnocentrism) are indeed the same latent construct, then it strongly implies a single “protective” slow LH strategy may inhibit antagonistic social attitudes and behaviors generally rather than just sexually coercive behaviors and negatively ethnocentric attitudes. Furthermore, the latent structure of this single “protective” slow LH strategy factor should be hierarchical in its latent organization, and conform to the theoretical partitioning of the different cognitive schemata presumably underlying the organization of an individual’s sexual and social relationships into the two inversely-covarying and lower-order latent categories specified by Figueredo and Jacobs (2010): (1) *mutualistic* social strategies; and (2) *antagonistic* social strategies. Finally, based on this reconceptualization of the underlying nomological relations, we should be able to directly link this single “protective” slow LH strategy factor to *negative androcentrism*, which represents the broadly defined set of cognitive, attitudinal, and affective biases against women that has been implicated by standard social science theories in the etiology of both sexual coercion and intimate partner violence, and this negative *androcentrism* construct should exhibit sufficient discriminant validity with respect to the negative

*ethnocentrism* construct previously identified by demonstrating generalizability across different ethnic groups in which the women may be nested, in that specifically-targeted and ethnically-heterogeneous indicators of *androcentrism* should show strong convergent validity across the selected ethnicities.

While achieving the methodological objectives of providing evidence of both convergent and nomological validation, providing joint empirical support for this particular conjunction of measurement and structural hypotheses should simultaneously achieve two important substantive objectives: (1) subjecting the theoretically-specified bipartite latent structure of the unitary higher-order slow LH strategy factor to a non-trivial risk of falsification; and (2) further extending the nomological network of that construct to include the theoretically-expected inhibition of *negative androcentrism* itself, which was an auxiliary hypothesis that was theoretically implied by the previous work but not explicitly supported by any of the empirical evidence presented.

### **Life History Theory**

According to LH Theory, organisms must make strategic resource allocation “decisions” regarding how to spend their limited bioenergetic and material resources among various fitness components. The theory implies that fast LH strategists exhibit increased resource investment in offspring quantity over quality, present over future reproduction, and mating effort over parental effort. “Slow” LH strategists exhibit the opposite pattern: resource investment in offspring quality over quantity, future over present reproduction, and parental over mating effort (Kaplan & Gangestad, 2005). Furthermore, a particular collection of personality and individual difference characteristics within a single individual may adaptively facilitate a coordinated fast or slow LH strategy. For example, strong inhibition of prepotent responses seems facilitative of a slow LH strategy characterized by future reproduction and long-term romantic relationships (Olderbak & Figueredo, 2010) and functionally discordant with a fast LH strategy. Supporting this idea, an aggregated latent trait, measured by various theoretically specified indicators of LH strategy, correlates with self-reported executive functions (i.e. “self-control”) (Figueredo et al., 2012a; Figueredo et al., 2012b; Salmon, Figueredo, & Woodburn, 2009).

Theoretically, clusters of Fast LH strategy characteristics develop, both over phylogenetic and ontogenetic timescales, in response to cues of unpredictable and uncontrollable environmental conditions, where rates of extrinsic morbidity and mortality are high (Ellis et al., 2009). An individual presented with cues indicating morbidity-mortality threat may adaptively accelerate sexual maturity, produce large numbers of babies

with a large number of genetically diverse sexual partners (Figueredo & Wolf, 2009). Whereas individuals exhibiting this cluster of characteristics would be relatively successful reproducers, individuals that exhibited relatively delayed sexual maturity, fewer (but perhaps higher) quality offspring, or restricted sociosexuality would be selected against. The same logic holds for other functionally concordant individual difference and personality characteristics that form coordinated LH trait composites.

### **Relations to Sexually Coercive and Violent Behaviors**

More specifically, a latent common factor composed of slow LH traits was recently linked to reduced frequencies of self-reported sexually coercive behaviors (Gladden et al., 2008) and intimate partner aggression (Figueredo et al., 2012b). Both of these findings were interpreted as suggesting that slow LH strategy strategically inhibits intersexual aggression. Both sexually coercive behaviors and intimate partner aggression, when perpetrated by men against women, have been hypothesized to result from what has been called *negative androcentrism*, which is broadly defined set of cognitive, attitudinal, and affective biases against women. Negative androcentrism has been variously construed to include constructs such as hostile masculinity, hostility towards women, rape myths acceptance, and “modern” sexism, encompassing certain subtler forms of sexual discrimination. We therefore hypothesize that slow LH strategies will serve an inhibitory and protective function against negative androcentrism and that this relationship partially mediates the reduction of sexually coercive and violent behaviors previously documented.

### **Relations to Negative Ethnocentrism**

Negative ethnocentrism can be broadly defined set of cognitive, attitudinal, and affective biases against persons belonging to other ethnic groups. Many classic theorists and researchers have implied that there exist various connections between negative androcentrism and negative ethnocentrism. One link between negative androcentrism and negative ethnocentrism is that they are both believed to rely on stereotype activation (Glick & Fiske, 1999). Androcentrism and ethnocentrism thus share similar cognitive and affective processes, insofar as they both draw upon stereotypes and heuristic knowledge about a group to make generalizations.

The actual stereotypes elicited, however, are different when one expresses negatively ethnocentric as opposed to negatively androcentric biases (Glick & Fiske, 1996). For example, negative ethnocentrism may have its evolutionary roots, at least in part, in disease avoidance (Kurzban

& Leary, 2001; Schaller, Faulkner, Park, Neuberg, & Kenrick, 2004; Navarette & Fessler, 2006; Navarette, Fessler, & Eng, 2007), whereas negative androcentrism is associated with adherence to socially prescribed gender roles (e.g., Larsen & Long, 1988). For example, women are often seen in very positive ways with respect to nurturance and communal attributes (Eagly, Mladinic, & Otto, 1991), but are often seriously rebuked when they take on more agentic roles (Rudman & Glick, 2001).

Nevertheless, similar arguments have been made about the automaticity of both negative androcentrism and negative ethnocentrism and the motivations needed to overcome these impulses (Klonis, Plant, & Devine, 2005). Inhibitory mechanisms have long been discussed on the Social Psychology literature in relation to prejudice (e.g., Devine, 1989). In her groundbreaking work, Devine found that prejudice responses are relatively automatic in most individuals, but those who had both the motivation and the capability to suppress such negative responses generally were able to reframe their thoughts and behave in non-prejudiced ways.

Since Devine's work, there has been a large body of evidence supporting the automatic associations of prejudice and the literature on the role of motivations controlling such reactions has flourished (see Graziano & Habashi, 2010 for review). With respect to self-regulation, interacting with mixed minorities can be a psychologically taxing on one's executive resources and control leading to diminished resources for the future. The greater the need to inhibit, the more taxed an individual gets (Richeson & Shelton, 2003).

Even if an individual has the motivation to control prejudice, the source of that motivation may have an impact on an individual's responses (e.g., Plant & Devine, 1998). For example, Plant and Devine found that those who only act non-prejudiced due to pressure from the outside world are more likely to engage in discriminatory behaviors in private than are individuals who act non-prejudiced because of "internal" motivation. Furthermore, even if an individual has the *proper* (i.e., "internal") motivation to avoid prejudicial responses, a lack of executive functioning resources may still create prejudicial behavior. These findings have been applied to adults for multiple ethnic groups (Plant & Devine, 1998) and in the domain of sexism (Klonis et al., 2005). Such automatic prejudices have been found in children and adolescents with similar outcomes (Degner & Wentura, 2010). Given the evidence put forth, it is clear that an individual either not motivated or not able to control prejudice of any kind will not.

For these and other substantive reasons, including as a general methodological precaution, we decided to include various convergent measures of socially-desirable responding in the present study to be able to statistically control for such potentially-confounding systematic biases in responding.

## Method

### Participants

One-hundred and two undergraduate students (37 males and 65 females), enrolled in an Introductory Psychology course participated.

### Procedure

Participants completed a series of self-report questionnaires on a personal computer that measured their life-history strategies, executive self-control, emotional intelligence, mating-effort, mate-value, psychopathy, Machiavellianism, reactive and proactive aggression, and various measures of Negative Androcentrism. Participants signed up for the study, provided informed consent, and completed the questionnaires over the internet through a secured website.

### Measures

#### **Mutualistic Social Strategies Measures.**

**Mini-K Short Form of the ALHB (Mini-K)** (Figueredo et al., 2006). Slow LH strategy was assessed using the Mini-K Short Form, consisting of 20 Likert-scale items based on the 199-item Arizona Life History Battery (*ALHB*; Figueredo, 2007). The *ALHB* is a battery of cognitive and behavioral indicators of life history strategy compiled and adapted from various original sources. The Mini-K correlates 0.85 with the full *ALHB* (Gladden, Figueredo, & Jacobs, 2009). The scale ranges from -3 (Disagree Strongly) to +3 (Agree Strongly) and includes items such as, “While growing up, I had a close and warm relationship with my biological father” and “I am closely connected to and involved in my community”.

**Mate Value Inventory (MVI)** (Kirsner, Figueredo, & Jacobs, 2003) was used to assess evaluative self-assessment. The MVI is a 17-item measure of self-perceived qualities that are considered desirable in a romantic or sexual partner. The scale ranges from -3 (Extremely low on this characteristic) to +3 (Extremely High on this characteristic) and includes items such as “Good sense of humor” and “intelligent”.

**Emotional Intelligence Scale-Short Form (EISF)** (Adapted From Andrade, Navarro, & Yock, 1999). The criteria for selection of the particular subset of items used in the EISF were described in Figueredo et

al. (2011). Sample items on the short form include: “It is difficult for me to pay attention to people until they finish talking” and “When I get angry, I blow up without wanting it”.

***Behavioral Regulation Scales of the Behavior Rating Inventory of Executive Function - Adult version (BRIEF-A)*** (Gioia, Isquith, Retzlaff, & Espy, 2002) was used to assess Executive Functions, including behavioral inhibition, cognitive inhibition, and appropriate regulation of behavior. This portion of the BRIEF-A is a 30-item self-report instrument of adult self-regulation in everyday environments that assess Emotional Control (e.g., “I overreact emotionally”), Inhibition (e.g., “I tap my fingers or bounce my legs”), Self-Monitoring (e.g., “I don’t think about consequences before doing something”), and Set Shifting (e.g., “I have trouble changing from one activity or task to another”). The scale ranges from 0 (Never) to 6 (Almost Always) and asks participants to report the frequency of each problematic behavior over the past month. For present purposes, all items were reverse-scored to indicate better, rather than worse, Behavioral Regulation.

***Multidimensional Sociosexual Orientation Inventory (MSOI) Long-term Mating Scale*** (Jackson & Kirkpatrick, 2007). The subscale contains 10-items and measures preference for long-term sexual relationships (LTSR). The LTSR scale ranges from -3 (Strongly Disagree) to +3 (Strongly Agree) and includes items such as: “Finding a long-term romantic partner is not important to me” (reversed scored item) and “I can see myself settling down romantically with one special person.”

### **Antagonistic Social Strategies Measures.**

***MSOI Short-Term Mating Scale*** (Jackson & Kirkpatrick, 2007). The subscale contains 10-items and measures preference for short-term sexual relationships (STSR). The STSR scale includes items such as: “Sex without love is ok” and “I can imagine myself being comfortable and enjoying “casual” sex with different partners”.

***Mating Effort Scale (MES)*** (Rowe, Vazsonyi, & Figueredo, 1997) measures the effort (e.g., time and energy) allocated toward obtaining and maintaining sexual partners. There are 10 items specific for male respondents and 10 specific for female respondents. The scale ranges from -2 (strongly disagree) to +2 (strongly agree) and includes items such as: “I think girls find me naturally attractive” and “I would rather date several boys at once than just one boy”.

***Levenson Psychopathy Self-Report*** (Levenson, Kiehl, & Fitzpatrick, 1995) is a two-dimensional measure of psychopathic attitudes and behaviors. The first is a 16-item inventory measuring primary psychopathy; the second is a 10-item inventory measuring secondary

psychopathy. Each scale ranges from -2 (Disagree Strongly) to +2 (Agree Strongly). Sample items include “I feel bad if my words or actions cause someone else to feel emotional pain” (reversed scored primary psychopathy scale) and “I find myself in the same kinds of trouble, time after time” (secondary psychopathy scale).

***Self-Report Psychopathy Scale (SRP III.12)*** (Paulhus, Neumann, & Hare, in press) is a 64-item measure of psychopathic attitudes and behaviors, which includes subscales assessing interpersonal manipulation, callous affect, erratic lifestyle, and criminal tendencies. The scale, which was slightly adapted ranged from -2 (Strongly Disagree) to +2 (Strongly Agree) and includes items such as “I purposely tried to hit someone with the vehicle I was driving” and “I never feel guilty over hurting others”.

***Machiavellianism Short Form*** (Christie & Geis, 1970) is a 10-item measure of Machiavellian attitudes. The scale, which ranges from -2 (Disagree Strongly) to +2 (Agree Strongly), includes items such as “The best way to handle people is to tell them what they want to hear” and “Anyone who trusts anyone else is asking for trouble”.

***Buss-Perry Aggression Questionnaire (BPAQ)*** (Buss & Perry, 1992) is a 29-item measure of physical aggression, verbal aggression, anger, and hostility. The scale, which we slightly adapted, ranged from -3 (Strongly Disagree) to +3 (Strongly Agree) and included items such as “I can think of no good reason for every hitting a person” and “I have threatened people I know”.

### **Biases against Mexican Immigrant Women and towards European American Women Measures.**

***Subtle and Blatant Prejudice towards Mexican Immigrant Women Scale (SBPS-MIW) and Subtle and Blatant Prejudice towards European American Women Scale (SBPS-EAW).*** Fourteen items from the Subtle and Blatant Prejudice Scale (SBPS; Pettigrew & Merteens, 1995) were used to tap both forms of prejudice against women of each of these two different ethnic groups. The *subtle* subscale measures three aspects of a covert form of antipathy: (1) defense of traditional values, (2) exaggeration of gender differences, and (3) denial of positive emotions; while the *blatant* subscale taps overt antipathy based on: (1) perceived threat from out-groups, (2) opposition to intimacy with out-group members, and (3) open rejection. Sample items include “Mexican immigrant women living here teach their children values and skills different from those required to be successful in the United States” (*subtle* subscale) and “Mexican immigrant women have jobs that American men should have” (*blatant* subscale).

***Realistic Threat from Mexican Immigrant Women Scale (RTS-MIW) and Realistic Threat from European American Women Scale (RTS-EAW).*** On the basis of the Integrated Threat Theory (Stephan & Stephan, 2000), 4-item scales of realistic threat were developed, focusing in perceptions of political and economic threats from women of each of these two different ethnic groups. Two sample items are as follows: “Mexican women living here threaten our personal liberties and rights” and “Mexican women living here threaten my personal economic situation”.

***Symbolic Sexism towards Mexican Immigrant Women Scale (SRS-MIW) and Symbolic Sexism towards European American Women Scale (SRS-EAW).*** The Symbolic Racism Scales (Henry & Sears, 2002) were adapted for measuring “symbolic sexism” against women of these two different ethnic groups. As applied to these two groups of women, these measures assessed the beliefs that: (1) sexual prejudice and discrimination towards women no longer exist, (2) any remaining sexual differences in economic outcomes result from the women’s lack of motivation to work hard enough, (3) their continuing anger over inequality is unjustified because women are unwilling to work to get what they want, (4) women seek special favors rather than working to get ahead, and (5) women have been getting more than they deserve economically relative to the men. These 8-item scales were deliberately created to prevent any response biases occasioned by individuals seeking to avoid overt expressions of direct and blatant forms of sexism, instead tapping into more indirect and subtle forms of racism, such as resentment over affirmative action programs. Sample items from the adapted scales included: “Over the past few years, Mexican Immigrant Women have gotten more economically than they deserve” and “It’s really a matter of some people not trying hard enough; if Mexican Immigrant Women would only try harder they could be just as well off as Whites”. The internal consistency reliabilities of these scales are not very good, reflecting the generally poor internal consistency of the Symbolic Racism Scale on which they are based. Nevertheless, their convergent validity coefficients with the common factors we constructed are adequate, as have been those of the Symbolic Racism Scales in our previous studies on negative ethnocentrism.

***Internal and external motivation to avoid prejudice towards Mexican Immigrant Women (IMS-MIW & EMS-MIW) and Internal and external motivation to avoid prejudice towards European American Women (IMS-EAW & EMS-EAW).*** The IMS and EMS are both 5-item scales that determine whether one’s motivation to appear non-prejudiced is internal, external, both, or non-existent (Devine, Plant, & Amodio, 2002). The items were adjusted for the present study and its target groups for the IMS (e.g., “I am personally

motivated by my beliefs to be non-prejudiced toward Mexican immigrant women.”) as well as the EMS (e.g., “I try to act non-prejudiced toward Mexican immigrant women because of pressure from others.”). However, neither the *EMS-MIW* nor the *EMS-EAW* correlated significantly to anything else in this study and were therefore not used in the present analyses.

### **General Negative Androcentrism Measures (Sexist Attitudes Factor Scale).**

***Modern Sexism Scale*** (Swim, Aikin, Hall, & Hunter, 1995) is an 8-item measure of general androcentric attitudes. The scale ranges from -3 (Strongly Disagree) to +3 (Strongly Agree) and contains items such as “Over the past few years, the government and news media have been showing more concern about the treatment of women than is warranted by women's actual experiences.”

***Hostility Towards Women Scale*** (Lonsway & Fitzgerald, 1995; Check, Malamuth, Elias, & Barton, 1985) is a 10-item measure of hostile and antagonistic attitudes towards women. The scale ranges from -3 (Strongly Disagree) to +3 (Strongly Agree) and includes items such as “I am sure I get a raw deal from the (other) women in my life” and “When it really comes down to it, a lot of women are deceitful”.

***Rape Myths Acceptance Scale*** (Lonsway & Fitzgerald, 1995) is a 19-item measure of acceptance of antagonistic beliefs about sexual aggression. The scale ranges from -3 (Strongly Disagree) to +3 (Strongly Agree) and contains items such as “Many rapes happen because women lead men on” and “Even though the woman may call it rape, she probably enjoyed it”.

### **Statistical Controls for Socially Desirable Responding**

***Marlowe-Crowne Social Desirability Scale*** (Crowne & Marlowe, 1960) contains 13 true-false items and measures general social desirability. It contains items such as “I sometimes feel resentful when I don't get my way” and “I sometimes try to get even rather than forgive and forget.”

***Balanced Inventory of Desirable Responding (BIDR-6)*** (Paulhus, 1989; Paulhus & Reid, 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).

## Statistical Analyses

All univariate and multivariate analyses were performed using SAS 9.1. Because it was not possible to analyze all the individual convergent measures within a single multivariate model simultaneously due to the limitations of our sample size ( $N < 250$ ), a hierarchical analytical strategy was employed. Unit-weighted common factor scores (Gorsuch, 1983) were estimated, using SAS PROC STANDARD and DATA, as the means of the standardized scores for all non-missing subscales on each factor scale (Figueredo, McKnight, McKnight, & Sidani, 2000).

Prior to this aggregation, however, all indicator variables were residualized by multiple regression using SAS PROC GLM on all three measures of social desirable responding: (1) the Marlowe-Crowne Social Desirability Scale, (2) the Balanced Inventory of Desirable Responding Self-deceptive Enhancement scale, and (2) the Balanced Inventory of Desirable Responding Impression Management scale. This was done to statistically control this potential source of bias that might occur when self-reporting socially undesirable attitudes and behavior, such as negatively androcentric ones.

Both the Cronbach's alphas and the covariance matrices of the subscales were computed using SAS PROC CORR. The factor structures (subscale-factor correlations) of the unit-weighted factors are presented in Table 1. Reliability coefficients for the social desirability scales are reported in Table 2.

All the unit-weighted factor scales were entered as manifest variables for multivariate causal analysis within a single structural equation model. Structural equation modeling (SEM) was performed by SAS PROC CALIS. Structural equation modeling between these constructs then provided a multivariate causal analysis of the structural relations between them. SEMs were evaluated by use of Chi-Squared, the Bentler-Bonett Normed Fit Index (*NFI*), the Bentler-Bonnett Comparative Fit Index (*CFI*), and the Root Mean Squared Error of Approximation (*RMSEA*). Index values of the *NFI* and *CFI* greater than 0.90 are considered satisfactory levels of practical goodness-of-fit (Bentler & Bonnett, 1980; Bentler, 1995), whereas *RMSEA* values of 0.05 or less are considered indications of good fit (Steiger & Lind, 1980; Browne & Cudeck, 1993). The *CFI* was selected because it is adjusted for model parsimony and performs well with moderate to small sample sizes ( $N < 250$ ), especially with Maximum Likelihood estimation (Bentler, 1990; Hu & Bentler, 1995). Alternative fit indices, such as the Bentler-Bonnett Non-Normed Fit Index (*NNFI*), provide poor estimates of model fit with smaller samples (Hu & Bentler, 1995).

Table 1  
*Unit-Weighted Factor Scales*

Scale	$\alpha$	Part-Whole Correlations
<i>Mutualistic Social Strategies</i>		
MiniK	.77	.67*
Mate-Value Inventory	.85	.68*
Emotional Intelligence	.92	.75*
BRIEF Self-Regulation Scales	.97	.52*
MSOI-Long Term Mating	.89	.58*
<i>Antagonistic Social Strategies</i>		
MSOI- Short Term Mating	.93	.57*
Mating Effort Scale	.63	.57*
Levenson Primary Psychopathy Scale	.82	.76*
Levenson Secondary Psychopathy Scale	.71	.76*
SRP III-Psychopathy Scale	.92	.82*
Machiavellianism	.54	.71*
Buss-Perry Aggression Scale	.92	.71*
<i>General Sexist Attitudes</i>		
Modern Sexism Scale	.77	.69*
Hostility Towards Women	.85	.66*
Rape Myths Scale equivalent	.93	.81*
<i>Bias Against Mexican Immigrant Women (MIW)</i>		
Subtle and Blatant Prejudice Scale	.69	.70*
Realistic Threat Scale	.92	.81*
Symbolic Sexism Scale	.38	.70*
Internal Motivation Scale	.84	.74*
<i>Bias Against European-American Women (EAW)</i>		
Subtle and Blatant Prejudice Scale	.74	.68*
Realistic Threat Scale	.96	.77*
Symbolic Sexism Scale	.16	.45*
Internal Motivation Scale	.87	.82*

*Note:* the part-whole correlations are analogous to factor loadings for the unit weighted factor scales.

\* $p < .0001$

### Statistical Power and Model Identification

There were a total on N=100 usable cases for SEM due to non-recoverable missing data. A sample size of  $N < 250$  is considered a “small” sample for the purposes of structural equations modeling. However, the absolute size of the sample must also be considered in terms of the relative complexity or parsimony of the model. The recommended ratio is at least five cases for every structural parameter freely estimated in confirmatory

models (Bentler, 1995). A sample size of  $N = 100$  could therefore in principle support the estimation of  $k = 20$  model parameters according to this ratio. The restricted model tested with the present data only contained  $k = 8$  free model parameters to be estimated.

The question of model identification is also a complex one which has been reviewed by Davis (1993), Reilly (1995), and Rigdon (1995). Nevertheless, there are two general rules of thumb which have emerged from these investigations, most concisely summarized by O'Brien (1994): (1) the "Three Indicator Rule," for one-factor models, which requires that every latent construct be associated with at least *three* manifest indicators; and (2) the "Two Indicator Rule," for multiple-factor models, which requires that every latent construct be directly associated with at least *two* manifest indicators, provided every latent construct is directly associated with at least *one* other latent construct. Of the two latent constructs specified in our model, the *Protective LH* factor satisfies the second criterion for theoretical model identification, and the *Negative Androcentrism* factor satisfies both of them.

Table 2  
*Cronbach's Alphas for Social Desirability Scales*

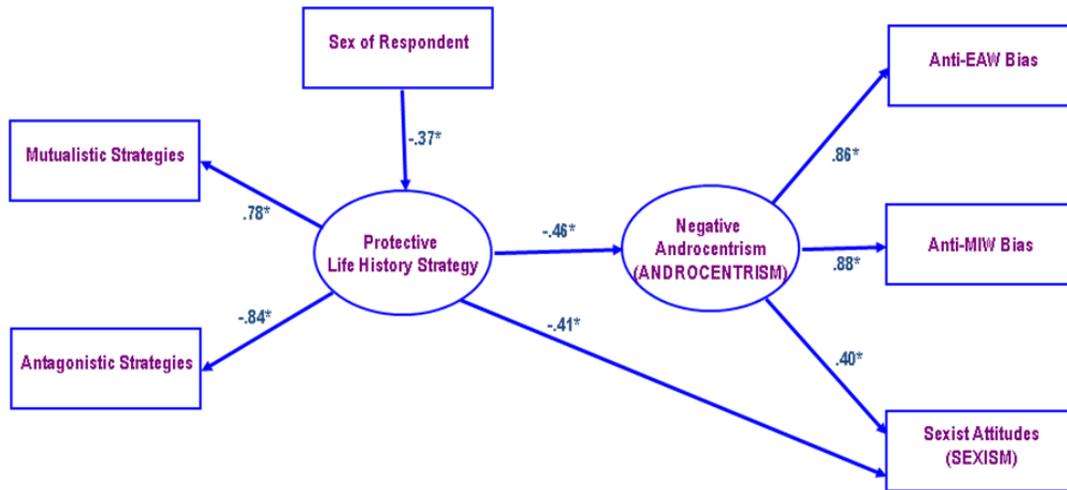
Scale	$\alpha$
Self-Deceptive Enhancement (BIDR)	.66
Image Management (BIDR)	.80
Marlowe-Crown Social Desirability	.70

## Results

The path-analytic SEM was an excellent fit by conventional statistical standards of goodness of fit. The model Chi-squared statistic was nonsignificant ( $\chi^2(11) = 2.624, p > .05$ ) and the goodness of fit was good by the major practical goodness-of-fit indices (CFI=1.000, RMSEA=.0000). The eleven residual degrees of freedom by which the chi-squared was evaluated indicate that the model is algebraically *overidentified*, meaning that there are more "knowns" than "unknowns" in the system of equations to be solved, or fewer parameters to be estimated in the model than unique, off-diagonal elements in the observed covariance matrix.

These results of these multivariate analyses are displayed in Figure 1. All path coefficients (effect sizes) that are significantly different ( $p < .05$ ) from zero are indicated by the asterisks (\*). Standardized regression coefficients ( $\lambda$ -weights or  $\beta$ -weights) for the measurement and structural pathways are reported. All model parameters were estimated by Maximum Likelihood (ML).

Figure 1. *Structural Model of Relations among biological sex of respondent, Life History Strategy, and Negative Androcentrism.*



$\chi^2(7)=2.624$  ( $p=.92$ , ns), CFI=1.000, RMSEA=.000

According to the SEM, Protective (slow) LH strategy is composed of Mutualistic Social Strategies ( $\lambda = .78$ ,  $p < .05$ ) and Antagonistic Social Strategies ( $\lambda = -.84$ ,  $p < .05$ ). *Negative Androcentrism* was composed of bias against Mexican Immigrant Women ( $\lambda = .88$ ,  $p < .05$ ), bias against European-American women ( $\lambda = .84$ ,  $p < .05$ ), and General Sexist Attitudes ( $\lambda = .40$ ,  $p < .05$ ). Being male contributed directly to developing a faster LH strategy ( $\beta = -.37$ ,  $p < .05$ ). *Protective LH* strategy contributed directly to decreasing *Negative Androcentrism* ( $\beta = -.46$ ,  $p < .05$ ) and general sexist attitudes ( $\beta = -.41$ ,  $p < .05$ ). *Protective LH* strategy fully mediated the relationship between biological sex of respondent and *Negative Androcentrism* (See Figure 1 for a representation of the complete model and pathway coefficients).

## Discussion

Our results indicate that the two similar “Protective” (slow) LH Factors that were previously associated with decreased negative ethnocentrism and decreased sexual coercion, respectively, do appear to represent the same latent trait. Each of the measures used in these previous studies (and some additional ones) were included in the present study and clustered together into a single *Protective LH factor*. This latent variable was

composed of two pre-aggregated composites, representing indicators of the inversely-covarying and lower-order theoretical constructs labeled *Mutualistic Social Strategies* and *Antagonistic Social Strategies*, respectively. The substantial part-whole correlations of each selected measure that was nested within each of these theoretically-specified composites and the unit-weighted factor scores of their corresponding aggregates indicate that the internal consistencies of these two clusterings are also supported by the data.

The *Negative Androcentrism* factor was composed of bias against Mexican-Immigrant Women (MIW), bias against European-American Women (EAW), and General Sexist Attitudes (hostile attitudes towards women, rape myths acceptance, and modern sexism). It is methodologically important here to note, in light of our previous results on negative ethnocentrism, that the stated ethnicity of the women to which the participants were purportedly responding (i.e., MIW or EAW) did not prevent the convergence of the indicators of the *Negative Androcentrism* factor. This indicates that the systematic biases against women were similar across the targeted ethnicities. In conclusion, our *Negative Androcentrism* construct appears to be relatively generalizable with respect to the ethnicity of the women evaluated. Individuals with negative attitudes towards women of one race tend to have negative attitudes towards women in general.

According to the structural model, the *Protective LH* factor, indicating slow LH strategy, directly inhibited Negative Androcentrism. In addition, *Protective LH* directly and negatively predicted General Sexist Attitudes. This presence of this latter pathway was not theoretically specified *a priori*. However, bias against Mexican-Immigrant Women (MIW) and bias against European-American Women (EAW), converged more strongly on the *Negative Androcentrism* factor than did General Sexist Attitudes. This may be due, at least in part, to test specific variance shared between the measures of bias against Mexican-Immigrant Women (MIW) and bias against European-American Women (EAW), which were modified versions of the same measures, adapted from scales originally used to measure negative ethnocentrism. Thus, the increased associations and higher factor loadings on these scales relative to the general sexist attitudes scales may be little more than a methodological artifact. Importantly, as described above, these results were statistically controlled for three measures of socially desirable responding. Thus, the relationship between *Protective LH* and *Negative Androcentrism* is unlikely merely to a desire to not want to report having socially undesirable attitudes against women.

### **Sexual Conflict, LH strategy, and Androcentrism**

Consistent with the previous findings (Figueredo & Jacobs, 2010), women scored higher than men on the *Protective LH* strategy factor. More importantly, according to our model, the *Protective LH* strategy factor fully mediated two related relationships: (1) between respondent sex and *Negative Androcentrism* and (2) between respondent sex and general sexist attitudes. This suggests that the *Protective LH* trait fully accounts for why men exhibit increased androcentric attitudes compared to women. Gladden et al. (2008) similarly reported that the *Protective LH* trait fully mediated the relationship between respondent sex and frequency of sexually coercive behavior. The fact that *Protective LH* strategy fully mediates the relation between respondent sex and both *Negative Androcentrism* and sexual coercion is consistent with the idea that Negative Androcentrism (and specifically hostile masculinity) may be involved in producing sexual coercion (Malamuth, Sackloskie, Koss, & Tanaka, 1991). In contrast, Figueredo et al. (2011) found only *partial* mediation of Protective LH strategy on the relation between respondent sex and Negative *Ethnocentrism*. The direct contribution of male sex toward increasing Negative Ethnocentrism was very small, but it does suggest that Protective LH does not fully account for men's tendencies toward antisocial attitudes in general. Perhaps this additional direct effect, specifically on ethnocentrism, serves as a cognitive or affective adaptation for the primary role that male humans have historically been assigned in the execution of violent intergroup hostilities (such as organized warfare). Our results suggest, however, that LH strategy may fully explain why men tend to exhibit relatively increased intersexual conflict (even with women of other ethnicities), as indicated by both attitudes and self-reported behavior (sexual coercion and intimate partner aggression).

The finding that reporting a faster LH strategy increases *Negative Androcentrism* in *both* men and women deserves further comment. There are at least two related possibilities that could account for this result: (1) fast LH strategists may in general possess decreased cognitive abilities (i.e., executive self-control and emotional intelligence) required to inhibit socially undesirable attitudes and behaviors and this decreased self-regulation results in exhibiting negatively androcentric attitudes and/or (2) fast LH strategists may perceive their interests to be divergent from those of women and these perceived conflict results in increased negatively androcentric attitudes. The first possibility is consistent with the second possibility because individuals with decreased flexible self-control seem likely to come into increased antagonistic conflict with other people. Thus, they may perceive their interests to be at odds with others. The second possibility makes sense because one facet of a fast LH strategy is pursuing a short-term sexual strategy. The interests of short-term sexual strategists

are likely to be divergent or antagonistic with both members of the opposite sex and members of their own sex. In other words, short-term strategy women are likely to exhibit increased intrasexual competition for mates compared to long-term strategy women. Conversely, short-term strategy men are likely to encounter resistance or “strategic interference” from women whose interests do not converge with men interested in casual sex without long-term resource investment. Similarly, Figueredo & Jacobs (2010) recently suggested that fast LH strategists are higher in antagonistic social strategies aimed at short-term strategic payoffs at the expense of others. Conversely, slow LH strategists are higher in mutualistic social strategies involving mutually-beneficial cooperation for long-term payoffs. This perspective can account for the current finding that fast LH men *and* women exhibit negatively androcentric attitudes because fast LH strategists (regardless of their sex) may be pursuing a strategy that consistently conflicts with the adaptive interests of women.

### **Competitive Disadvantage and Negative Androcentrism**

These results suggest a broader interpretation of a number of previously documented findings. Reviewing some of these convergent findings in light of LH theory might help elucidate and expand the *nomological net* in which all these theories and observations can be situated (Cronbach & Meehl, 1955).

Evolutionary theorists have proposed that individuals perceiving a “competitive disadvantage” in competing for, attracting, or maintaining desirable romantic partners may conditionally adopt antisocial (antagonistic) tactics to obtain, coerce, and/or retain sexual partners (Thornhill & Thornhill, 1983; Thornhill & Palmer, 2000; Figueredo & McCloskey, 1993; Figueredo, Sales, Becker, Russell, & Kaplan, 2000; Gladden et al., 2008). For example, Malamuth et al. (1991) have demonstrated a link between hostile masculinity (a form of Negative Androcentrism) and sexual coercion. It has been speculated, although not conclusively demonstrated, that hostile masculinity on the part of certain individuals is at least partially attributable to a history of rejection by and/or antagonistic conflict with women (Malamuth, Linz, Heavey, Barnes, & Acker, 1995; reviewed by Malamuth, Huppin, & Paul, 2005). Several evolutionary theorists have discussed the possibility that sexual coercion may be more likely among individuals who perceive themselves to be relatively “competitively disadvantaged” in attracting and keeping desirable romantic partners (Thornhill & Palmer, 2000; Figueredo, Sales, et al., 2000; Figueredo & Jacobs, 2010; Gladden et al., 2008). Similarly, Daly & Wilson (1988) reported that lethal conflict is more likely to occur among men possessing relatively few resources and low status, which are important in attracting desirable women (see also Daly, Wilson, & Vasdev,

2001). Thus, it could be that negative or generally antagonistic attitudes towards others (including both other ethnicities and towards women) are exhibited by individuals who perceive that they are of relatively lower phenotypic quality or mate value and perceive their interests to be in direct conflict with or divergent from members of other groups and women.

Consistent with this idea, the results of Gladden et al. (2008) suggested that one indicator of the slow LH factor that inhibits sexual coercion is self-perceived mate-value. Following up on this result, Gladden et al. (2010) reported that slow LH strategy correlates ( $r=.49$ ) with a variety of statistically convergent measures of evaluative self-assessment, including measures of collective and individual self-esteem, perceived mate-value and mating success. The authors argued that slow LH individuals accurately perceive themselves as relatively high in phenotypic quality, as predicted by the strategic quantity-quality tradeoff, which is one component of LH strategy (see below). Thus, fast LH strategists may be competitively disadvantaged and perception of this disadvantage may contribute to antisocial attitudes such as negative androcentrism.

Taken together with this previous result, our current results suggest that fast LH individuals may exhibit increased negatively androcentric attitudes because they perceive themselves to be relatively disadvantaged in competing for romantic partners. Men perceiving themselves to be at a competitive disadvantage when they fail to attract or retain desired partners may experience resentment and this may develop into anger at women in general. Conversely, women perceiving themselves to be at a competitive disadvantage compared to other women may resent these other women for outcompeting them. Thus, as an adaptive tactic these women, competitively disadvantaged women may deride, disparage, and chastise their intrasexual rivals (Buss & Dedden, 1990; Schmitt & Buss, 1996).

Because resource allocation toward offspring quality over quantity of offspring is characteristic of slow LH strategies and because LH strategy is substantially heritable (Figueredo et al., 2004; Figueredo & Rushton, 2009), LH theory suggests that fast LH individuals will exhibit decreased phenotypic quality. Indeed, as described above, slow LH strategy correlates with a latent trait composed of various measures of self-perceived quality (i.e., evaluative self-assessment) (Gladden, Figueredo, & Snyder, 2010). We suggest that slow LH strategy inhibits Negative Androcentrism, in part, because low phenotypic quality may result in increased rejection by and conflict with women. Low quality (fast LH strategy) men may resent rejection by desirable sexual partners. The negative evaluative self-assessment of fast LH strategists is also consistent with the evidence supporting Social Identity Theory in that both predict

theories that negatively androcentric and ethnocentric individuals should have lower self-esteem (Hogg & Abrams, 1990; Tajfel, 1978).

Finally, fast LH strategy men may come into increased conflict with women because fast LH strategists pursue an unrestricted sociosexuality strategy and resist long-term relationship and parental investment. Thus, their reproductive interests are directly opposed by women who seek signs of long-term commitment and the ability and willingness to invest parentally. On the other hand, fast LH strategy women may also experience (and create) increased intrasexual conflict because their high mating-effort strategy directly conflicts with the reproductive interests of other women. Thus, fast LH men and women both exhibit increased Negative Androcentrism.

### **Conclusion: Inhibition of Antisocial Attitudes by Slow LH Strategy**

In summary, these results suggest that slow LH (and perhaps particularly the facets of emotional intelligence and executive self-regulation) inhibits bias against women in a similar way that it inhibits bias against other ethnic groups. This implies some degree of overlap between negatively ethnocentric and negatively androcentric tendencies, as predicted by social psychology theory. Further, these self-regulatory features of slow LH strategy may inhibit sexually coercive tendencies specifically by inhibiting negatively androcentric tendencies. More generally, self-regulatory features that are increased among slow LH strategists may inhibit social and moral rule violations. This additional hypothesis requires further testing.

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### **References**

- Andrade R. X., Navarro S. O. & Yock, C. I. (1999). *Construcción y Validación de una Prueba para Medir Inteligencia Emocional*. Tesis para optar por el grado de Licenciatura en Estadística. San José, Costa Rica: Universidad de Costa Rica, Escuela de Estadística.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238-246.
- Bentler, P. M. (1995). *EQS: Structural Equations Program Manual*. Los Angeles, CA: Multivariate Software.

- Bentler, P. M., & Bonnett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88*, 588-606.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sociological Methods and Research*, *21*, 230-258.
- Buss, A. & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology*, *63*, 452-459.
- Buss, D. M., & Dedden, L. (1990). Derogation of competitors. *Journal of Social and Personal Relationships*, *7*, 395-422.
- Check, J. V. P., Malamuth, N. M., Elias, B., & Barton, S. (1985, April). On hostile ground. *Psychology Today*, 56-61.
- Christie, R. & Geis, F. (1970). *Studies in Machiavellianism*. New York: Academic Press.
- Cronbach, L. J., & Meehl, P.E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, *52*, 281-302.
- Crowne, D. P. & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, *24*, 349-354.
- Daly, M. & Wilson, M. (1988). *Homicide*. Hawthorne, NY: Aldine de Gruyter.
- Daly, M., Wilson, M. & Vasdev, S. (2001). Income inequality and homicide rates in Canada and the United States. *Canadian Journal of Criminology*, *43*, 219-246.
- Davis, W. R. (1993). The FC1 rule of identification for confirmatory factor analysis: A general sufficient condition. *Sociological Methods and Research*, *21*, 403-437.
- Degner, D., & Wentura, D. (2010). Automatic prejudice in childhood and early adolescence. *Journal of Personality and Social Psychology*, *98*, 356-374.
- Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology*, *56*, 5-18.
- Devine, P. G., Plant, A. E., & Amodio, D. M. (2002). The regulation of explicit and implicit race bias: The role of motivations to respond without prejudice. *Journal of Personality and Social Psychology*, *82*, 835-848.
- Eagly, A. H., Mladinic, A., & Otto, S. (1991). Are women evaluated more favorably than men? An analysis of attitudes, beliefs, and emotions. *Psychology of Women Quarterly*, *15*, 203-216.
- Ellis, L. (1988). Criminal Behavior and r/K selection: An extension of gene-based evolutionary theory. *Personality and Individual Differences*, *9*, 696-708.
- Ellis, L. (1989a). Sex hormones, r/K selection, and victimful criminality. *Mankind Quarterly*, *29*, 329-340
- Ellis, L. (1989b). Sex differences in criminality: An explanation based on the concept of r/K selection. *Mankind Quarterly*, *30*, 17-37.
- Ellis, B. J., Figueredo, A. J., Brumbach, B. H., & Schlomer, G. L. (2009). Fundamental dimensions 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., & Jacobs, W. J. (2010). Aggression, risk-taking, and alternative life history strategies: The behavioral ecology of social deviance. In Frias-Armenta, M. & Corral-Verdugo, V., (Eds.), *Bio-Psycho-Social Perspectives on Interpersonal Violence* (pp. 3-28). Hauppauge, NY: Nova Science Publishers.

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- Figueredo, A. J., & McCloskey, L. A. (1993). Sex, money, & paternity: The evolutionary psychology of domestic violence. *Ethology and Sociobiology*, *14*, 353-379.
- Figueredo, A. J., & Rushton, J. P. (2009). Evidence for shared genetic dominance between the general factor of personality, mental and physical health, and life history traits. *Twin Research and Human Genetics*, *12*, 555–563.
- Figueredo, A. J., & Wolf, P. (2009) Assortative pairing and life history strategy. *Human Nature*, *20*, 317-330.
- Figueredo, A. J., Andrzejczak, D. J., Jones, D. J., Smith-Castro, V., & Montero-Rojas, E. (2011). Reproductive strategy and ethnic conflict: Slow life history as a protective factor against negative ethnocentrism in two contemporary societies. *Journal of Social, Evolutionary, and Cultural Psychology*, *5*, 14-31.
- Figueredo, A. J., Gladden, P. R., & Beck, C. J. A. (2012a). Intimate partner violence and life history strategy. In A. Goetz & T. Shackelford, (Eds.), *The Oxford Handbook of Sexual Conflict In Humans*, Chapter 5 (pp. 72-99). New York, NY: Oxford University Press.
- Figueredo, A. J., Gladden, P. R., & Hohman, Z. (2012b). The evolutionary psychology of criminal behavior. In S.C. Roberts, (Ed.), *Applied Evolutionary Psychology*, (pp. 201-221). New York, NY: Oxford University Press.
- Figueredo, A. J., McKnight, P. E., McKnight, K. M., & Sidani, S., (2000). Multivariate modeling of missing data within and across assessment waves. *Addiction*, *95* (Supplement 3), pp. S361-S380.
- Figueredo, A. J., Sales, B. D., Becker, J. V., Russell, K., & Kaplan, M. (2000). A Brunswikian Evolutionary-Developmental model of adolescent sex offending. *Behavioral Sciences and the Law*, *18*, 309-329.
- Figueredo, A. J., Vásquez, G., Brumbach, B. H., Schneider, S. M. R., Sefcek, J. A., Tal, I. R., Hill, D., Wenner, C. J., & Jacobs, W. J. (2006). Consilience and life history theory: From genes to brain to reproductive strategy. *Developmental Review*, *26*, 243-275.
- Gioia, G. G., Isquith, P. K., Retzlaff, P., & Espy, K. A. (2002). Confirmatory Factor Analysis of the BRIEF in a Clinical Sample. *Child Neuropsychology*, *8*, 249-257.
- Gladden, P. R. (2011). Rule Governed Behavior: Investigating a structural model of influences on adherence to rules. Unpublished Doctoral Dissertation, University of Arizona.
- 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., Figueredo, A. J., & Snyder, B. (2010). Life history strategy and evaluative self-assessment. *Personality and Individual Differences*, *48*, 731–735.
- 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.

- Glick, P., & Fiske, S. T. (1996). The Ambivalent Sexism Inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology*, *70*, 491–512.
- Glick, P., & Fiske, S. T. (1999). Sexism and other “isms”: Interdependence, status, and the ambivalent content of stereotypes. In W. B. Swann, Jr., J. H. Langlois, & L. A. Gilbert (Eds.), *Sexism and stereotypes in modern society: The gender science of Janet Taylor Spence* (pp.193–221). Washington, DC: American Psychological Association.
- Gorsuch, R. L. (1983). *Factor Analysis*. Hillsdale, N.J.: Erlbaum.
- Graziano, W. G., & Habashi, M. M. (2010). Motivational processes underlying both prejudice and helping. *Personality and Social Psychology Review*, *14*, 313-331.
- Henry, P. J., & Sears, D. O. (2002). The symbolic racism 2000 scale. *Political Psychology*, *23*, 253-283.
- Hogg, M. & Abrams, D. (1990). Social motivation, self-esteem and social identity. In Abrams, D & Hogg, M (Eds) *Social identity theory: Constructive and critical advances*. London: Harvester Wheatsheaf.
- Hu, L. T., & Bentler, P. M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 76-99). Thousand Oaks, CA: Sage.
- Jackson, J. J., & Kirkpatrick, L. A. (2007). The structure and measurement of human mating strategies: toward a multidimensional model of sociosexuality. *Evolution and Human Behavior*, *28*, 382–391.
- Kaplan, H. S. & Gangestad, S. W. (2005). Life History Theory and Evolutionary Psychology. In: *The handbook of evolutionary psychology* (pp. 68-95). Buss, D.M. Hoboken, NJ: John Wiley and Sons.
- 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.
- Klonis, S. C., Plant, E. A., & Devine, P. G. (2005). Internal and external motivation to respond without sexism. *Personality and Social Psychology Bulletin*, *31*, 1237-1249.
- Kurzban, R., & Leary, M. R. (2001). Evolutionary origins of stigmatization: The functions of social exclusion. *Psychological Bulletin*, *127*, 187-208.
- Larsen, K. S., & Long, E. (1988). Attitudes toward sex-roles: Traditional or egalitarian? *Sex Roles*, *19*, 1-12.
- Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology*, *68*, 151-158.
- Lonsway, K. A. & Fitzgerald, L. F. (1995). Attitudinal Antecedent of Rape Myth Acceptance: a theoretical and empirical examination. *Journal of Personality and Social Psychology*, *68*, 704-711.
- Malamuth, N. (1996). Research on the confluence model of sexual aggression based on feminist and evolutionary perspectives. In Buss, D., & Malamuth, N. (Eds.). *Sex, power, conflict: Evolutionary and feminist perspectives*. (pp. 269-295). New York: Oxford University Press.
- Malamuth, N. (1998). The confluence model as an organizing framework for research on sexually aggressive men: Risk moderators, imagined aggression

- and pornography consumption. In R. Geen and E. Donnerstein (Eds.) *Aggression: Theoretical and empirical reviews*. (pp. 229-245). New York: Academic Press.
- Malamuth, N. M., Huppert, M., & Paul, B. (2005). Sexual Coercion. In D. M. Buss (Ed.), *The Handbook of Evolutionary Psychology* (pp. 394-418). New York, NY: Wiley.
- Malamuth, N. M., Linz, D., Heavey, C. L., Barnes, G., & Acker, M. (1995). Using the confluence model of sexual aggression to predict men's conflict with women: A 10-year follow-up study. *Journal of Personality and Social Psychology*, *69*, 353-369.
- Malamuth, N. M., Sackloskie, R., Koss, M. P., Tanaka J. (1991): The characteristics of aggressors against women: Testing a model using a national sample of college students. *Journal of Consulting and Clinical Psychology*, *59*, 670-681.
- Navarette, C. D. & Fessler, D. M. T. (2006). Disease Avoidance and Ethnocentrism: the effects of disease vulnerability and disgust sensitivity on intergroup attitudes. *Evolution and Human Behavior*, *27*, 270-282.
- Navarette, C. D., Fessler, D. M. T., & Eng, S. J. (2007). Elevated ethnocentrism in the first trimester of pregnancy. *Evolution and Human Behavior*, *28*, 60-65.
- O'Brien, R. M. (1994) Identification of simple measurement models with multiple latent variables and correlated errors. *Sociological Methodology*, *24*, 359-383.
- Olderbak, S. & Figueredo, A. J. (2010). Life History Strategy as a longitudinal predictor of relationship satisfaction and dissolution. *Personality and Individual Differences*, *49*, 324-329.
- Paulhus, D. L. (1989). *Measuring self-deception and impression management in self-reports; The Balanced Inventory of Desirable Responding—Version 6*. Unpublished manual.
- Paulhus, D. L., Neumann, C. S., & Hare, R. D. (in press). Manual for the *Self-Report Psychopathy scale*. Toronto: Multi-Health Systems.
- Paulhus, D. L., & Reid, D. B. (1991). Enhancement and denial in socially desirable responding. *Journal of Personality and Social Psychology*, *60*, 307-317.
- Pettigrew, T. F., & Meertens, R. W. (1995). Subtle and blatant prejudice in Western Europe. *European Journal of Social Psychology*, *25*, 57-75.
- Plant, E. A., & Devine, P. G. (1998). Internal and external motivation to respond without prejudice. *Journal of Personality and Social Psychology*, *75*, 811-832.
- Reilly, T. (1995). A necessary and sufficient condition for identification of confirmatory factor analysis models of complexity one. *Sociological Methods and Research*, *23*, 421-441.
- Richeson, J. A., & Shelton, J. N. (2003). When prejudice does not pay: effects of interracial contact on executive function. *Psychological Science*, *14*, 287-290.
- Rigdon, E. E. (1995). A necessary and sufficient identification rule for structural models estimated in practice. *Multivariate Behavioral Research*, *30*, 359-383.
- Rowe, D. C., Vazsonyi, A. T., & Figueredo, A. J. (1997). Mating Effort in adolescence: Conditional or alternative strategy? *Personality and Individual Differences*, *23*, 105-115.

- Rudman, L. A., & Glick, P. (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues, 57*, 743-762.
- Rushton, J. P. (1985). Differential K theory: The sociobiology of individual and group differences. *Personality and Individual Differences, 6*, 441-452.
- Salmon, C., Figueredo, A. J., & Woodburn, L. (2009). Life history strategy and disordered eating behavior. *Evolutionary Psychology, 7*, 585-600.
- Schaller, M., Faulkner, J., Park, J. H., Neuberg, L. S., & Kenrick, T. D. (2004). Impressions of danger influence impressions of people: An evolutionary perspective on individual and collective cognition. *Journal of Cultural and Evolutionary Psychology, 2*, 231-247.
- Schmitt, D. P., & Buss, D. M. (1996). Mate attraction and competitor derogation: Context effects on perceived effectiveness. *Journal of Personality and Social Psychology, 70*, 1185-1204.
- Steiger, J. H., & Lind, J. C. (1980). Statistically-based tests for the number of common factors. Paper presented at the annual Spring Meeting of the Psychometric Society in Iowa City. May 30, 1980.
- Stephan, W. S., & Stephan C. W. (2000). An integrated threat theory of prejudice. In S. Oskamp (Ed.), *Reducing prejudice and discrimination* (pp. 23-45). Mahwah, NJ: Lawrence Erlbaum.
- Swim, J. K., Aikin, K. J., Hall, W. S., & Hunter, B. A. (1995). Sexism and racism: Old fashioned and modern prejudices. *Journal of Personality and Social Psychology, 68*, 199- 214.
- Tajfel, H. (Ed.). (1978). *Differentiation Between Social Groups*. London: Academic Press.
- Thornhill, R. & Palmer, C. (2000). *A natural history of rape: Biological bases of sexual coercion*. Cambridge, MA: MIT Press.
- Thornhill, R. & Thornhill, N. (1983). Human rape: An evolutionary analysis. *Ethology and Sociobiology, 4*, 137-173.