



ELSEVIER

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

 ScienceDirect

Personality and Individual Differences 43 (2007) 2105–2115

---

---

PERSONALITY AND  
INDIVIDUAL DIFFERENCES

---

---

[www.elsevier.com/locate/paid](http://www.elsevier.com/locate/paid)

# Narcissism, vanity, personality and mating effort

Vincent Egan <sup>\*</sup>, Cara McCorkindale

*Department of Psychology, Glasgow Caledonian University, Cowcaddens Road, Glasgow G4 0BA,  
Scotland, United Kingdom*

Received 10 November 2006; received in revised form 19 June 2007; accepted 27 June 2007  
Available online 15 August 2007

---

## Abstract

The current study examined the relationship between narcissism and vanity, and the degree these are predicted by the ‘Big Five’ personality traits and mating effort (ME) using a sample of 103 females recruited from a large beauty salon. Narcissism correlated with vanity at 0.72 ( $P < 0.001$ ), and was associated positively with extraversion (E), ME and the subscales of vanity; narcissism was associated negatively with neuroticism (N) and agreeableness (A). Vanity correlated positively with E, conscientiousness, both subscales of narcissism, and ME, and negatively with N and A. A composite narcissism–vanity score was produced using principal components analysis, and used along with scores from the NEO-FFI-R to predict mating effort. The narcissism–vanity composite, low A and E significantly and independently predicted mating effort (adjusted  $R^2 = 0.28$ ,  $F(9.96) = 7.74$ ,  $P < 0.001$ ). These results show that mating effort is additionally predicted by narcissism as well as self-reported personality.

© 2007 Elsevier Ltd. All rights reserved.

*Keywords:* Narcissism; Personality; Mating effort; Vanity; Self-enhancement; Beauty

---

## 1. Introduction

Although narcissism forms one third of the ‘dark triad’ of personality and is associated with low agreeableness (A) and other unpleasant aspects of character (Jakobwitz & Egan, 2006),

---

<sup>\*</sup> Corresponding author. Present address: School of Psychology, Forensic Section, 106 New Walk, Leicester LE1 7EA, United Kingdom. Tel.: +44 (0) 116 252 3658.

*E-mail address:* [vincent.egan@le.ac.uk](mailto:vincent.egan@le.ac.uk) (V. Egan).

narcissism also promotes and protects self-interest, enhancing positive aspects of the self, and so is probably evolutionarily adaptive (Campbell, 2001). The role of vanity in this process is less well specified, but it seems plausible that enhancing one's own physical attractiveness could assist mate choice. Persons higher in narcissism prefer to look at themselves in the mirror (Robins & John, 1997), but this behaviour could be construed as vanity, as it places greater emphasis on physical self-presentation. The present study examines whether vanity is a “jangle” variant on narcissistic traits, and whether it adds to an understanding of how personality relates to mating effort.

The narcissistic personality inventory (NPI; Raskin & Hall, 1979; Raskin & Terry, 1988) correlates positively with Eysenck's extraversion (E) and psychoticism (P) dimensions (Raskin & Hall, 1981). These findings support the lay view that a narcissist is exhibitionist, assertive, controlling and critically evaluative. While Eysenck's dimensions of E and neuroticism (N) are satisfactory, the P dimension is problematic (Caruso, Witkiewitz, Belcourt-Dittloff, & Gottlieb, 2001). Costa and McCrae's 'Big Five' model of personality uses the dimensions of A and conscientiousness (C) to predict P-like qualities without confusing diagnostic labels and behavioural description; moreover, A and C are reliable to measure. Using a short-form measure of the 'Big Five', Kubarych, Deary, and Austin (2004) found persons higher on narcissism and NPI “power” and “exhibitionism” subscales higher in E and O, and lower in A and N. These findings suggest narcissism is a higher-order product of normal general personality traits.

Narcissism can hinder relationships; persons higher in narcissism are less likely to commit to a partner, more inclined to play emotional ‘games’ with them, and more likely to consider possible other lovers (Campbell & Foster, 2002; Campbell, Foster, & Finkel, 2002). It is unclear whether the narcissist's behaviour in relationships reflects the effects of personality, attitudes to sexuality, or both (Foster, Shrira, & Campbell, 2006). However, it would be surprising if narcissism was unrelated to mating effort. Mating effort is the “energy expenditure allocated to locating, courting and sexually interacting with individuals of the preferred sex and age” (Lalumière & Quinsey, 1996, pp. 34), is readily measured using a brief scale (Rowe, Vazsonyi, & Figueredo, 1997), and is related to self reported delinquency (Charles & Egan, 2005), self reported psychopathy (Egan & Angus, 2004), and general anti-social tendencies (Lalumière & Quinsey, 1996). This study examines whether narcissism correlates with mating effort.

Compared to narcissism and personality, vanity has been largely unexplored. The difference between these constructs is that narcissism can involve self-perception, whereas vanity is primarily about appearance. LeBel (2003) found a pilot vanity scale broke down into two components – physical appearance and confidence in one's own abilities – which correlated positively with E and O, and negatively with NEO-FFI N, A, and C. While vanity can be seen negatively (and its correlations with low A and low C support this view), self-presentational motives involving a concern for one's personal appearance and the desire to enhance individual attractiveness help persons to form relationships with one another, and appearing pleasant is likely to help this process. Rhodes (2006) finds concepts of attractiveness consistent across cultures and gender, challenging the view that such preferences are arbitrary and socially constructed, universal criteria for biological attractiveness being the averageness of facial features, bilateral symmetry, and sexual dimorphism. Such attractiveness is an adaptation to mate choice and signals mate quality, in particular, health (Grammer, Fink, Møller, & Thornhill, 2003). Not all persons are as attractive as they would like, so enhancing one's appearance can be seen as rational, and vanity's preoccupation with self- presentation potentially one expression of this concern.

It may be that some attributes of intrasexual competition denote positive qualities that enhance courtship (Miller, 2000).

Positive attitudes to the physical presentation of the self are common; for example, Jackson, Ervin, and Hodge (1992) found NPI-measured narcissism positively correlated with more positive evaluations of physical appearance, fitness and sexuality. Narcissistic individuals considered appearance and fitness more important, and engaged in more appearance and fitness enhancing activities than the less narcissistic (Jackson et al., 1992). Furthermore, Davis, Claridge, and Cerullo (1997) found that healthily narcissistic women were generally at ease with their bodies. The healthiest narcissistic women appeared to be confident about their physical appearance and sexual attraction, and claimed that they did not need others to validate their self-image.

Vanity and narcissism appear complementary parts of attracting and retaining partners, but how they relate to mating effort is unclear. The current study extends preceding research on personality and narcissism by adding the concepts of vanity and mating effort to the debate, examining whether vanity provides additional value to information obtained from narcissism and personality measures alone. We predicted that mating effort would be predicted by facets of narcissism, vanity and low A. We further anticipated that participants who score high on E and O (and low on A and N) would score higher on narcissism; that higher vanity would be associated with greater E and O; and that persons higher in narcissism would be higher for both facets of vanity. We sought to examine how much variance in mating effort could be predicted by a combination of narcissism, vanity, and personality.

## 2. Method

### 2.1. Participants

One hundred and three female clients of a hair and beauty salon participated in the current study. The clients ranged from age 18 to 48 (mean age = 25, SD = 6.6 years) and reflected an unselected female cohort seeking treatment before the Christmas social season commenced; occupationally, the cohort ranged from the unemployed, students, manual workers up to persons in professional occupations. The Christmas season was selected as a less biased participant recruitment period, as many women who would not usually use any treatment provided by a beauty salon seek to do so during this period because of the many social events that occur thereabouts.

### 2.2. Measures

#### 2.2.1. The NEO-FFI-R (McCrae & Costa, 2004)

The NEO-FFI-R is the revised version of the NEO-FFI, slightly restructured for increased reliability and to lower the internal correlation between subscales (Egan, Deary, & Austin, 2000). The scale uses 60 items to index the five broad personality dimensions of N, E, O, A, and C. In responding to the inventory participants report the extent to which they agree or disagree in regards to how each item applies to them rating themselves on a five point Likert scale. The scale is highly reliable and valid.

### 2.2.2. *The narcissistic personality inventory (NPI; Raskin & Terry, 1988)*

Narcissism was measured using the NPI, from which a total score and subscales reflecting power and exhibitionism were derived. The forced-choice response to the NPI statements was replaced by a four point Likert scale (–2 ‘strongly disagree’, –1 ‘slightly disagree’, +1 ‘slightly agree’, and +2 ‘strongly agree’) as per Kubarych et al.’s proposal to use dichotomous statements as anchors on a Likert scale (Kubarych et al., 2004). A consistent Likert style response across scales used in this research helped avoid any response confusion in scale completion.

### 2.2.3. *Vanity scale (LeBel, 2003)*

The vanity scale consists of 22 items and uses a five point Likert response. This ranges from –2 (strongly disagree) to 2 (strongly agree) and has a midpoint of 0 (neutral). The scale examines two domains of vanity, physical and intellectual vanity. The scale and its subscales are highly reliable. As the scale has not been previously published in a formal scientific paper, it is presented at [Appendix A](#).

### 2.2.4. *The mating effort scale (MES; Rowe et al., 1997)*

The MES was slightly modified to make it more applicable to an older sample by changing words such as ‘boys’ and ‘girls’ to ‘males’ and ‘females’. Items were endorsed using a five point Likert scale ranging from –2 (strongly disagree) to 2 (strongly agree) with a midpoint of 0 (neutral). The MES is highly reliable.

## 2.3. *Procedure*

Questionnaires were given to participants in a large hair and beauty salon, which were completed either in the waiting area, or while participants were waiting for their colour to develop whilst in the salon area. The booklet given to the participant comprised an information sheet about the study informing the client about the research, and their rights as a participant in a psychological study. The package also held a consent form and the four questionnaires measuring personality, narcissism, vanity, and mating effort.

## 2.4. *Plan of analysis*

To ensure no confusion of predictor and outcome, the three items in the NPI loading on a vanity factor in Raskin and Terry’s 1988 paper (items 15, 19 and 29 in the NPI version used for this study) were not included in the summed NPI variables. Pearson correlations were calculated between scores on vanity and the two vanity subscales of physical appearance and mental ability. Narcissism was measured as a total score and also as subscales of power and exhibitionism. Each of these scores was correlated with the five subscales of the NEO-FFI-R and the mating effort scale. The reliability of these measures was calculated using Cronbach’s  $\alpha$ . To examine the general influence of narcissism, vanity and A on mating effort, we created a composite narcissism and vanity factor score based on a principal components analysis of the four narcissism and vanity subscales. We then used multiple regression to examine the degree to which mating effort was predicted by the composite score and scores of the five dimensions of the NEO-FFI-R.

### 3. Results

Table 1 presents means, standard deviations and internal reliabilities for the measures used in the study. Reliabilities within all measures were all adequate, although some measures had greater internal reliability than others. This internal reliability remained strong when narcissism and vanity were both broken down into their subscales. The narcissism subscales of power and exhibitionism were both highly reliable (0.87 and 0.84 respectively). The subscales of vanity – physical appearance and cognitive ability – also demonstrated high internal reliability (0.89 and 0.82, respectively).

Table 2 presents the correlations between the main measures in the study. It is notable that neither O nor C significantly correlates with any other measure in the study, calling into question the value of these variables as genuine predictors of narcissism or vanity. By contrast, N, E and A were all significantly correlated with narcissism and vanity and their respective subscales, with vanity and narcissism correlating at 0.74 ( $P < 0.001$ ). Total vanity correlated with total narcissism at 0.72 ( $P < 0.001$ ), the subscales of narcissism and vanity being themselves highly correlated with each other. Mating effort was significantly and positively correlated with all aspects of vanity and narcissism, as predicted; the association of mating effort and vanity about ability was lower than for other relationships between vanity, narcissism, and mating effort, but differences between coefficients were not statistically significant. Low A correlated with higher mating effort ( $r = -0.37$ ,  $p < 0.01$ ).

Given the size of the correlation between the narcissism and vanity measures, and the sample size, the current study lacked the statistical power to demonstrate whether vanity added any discriminant or incremental value to the prediction of mating effort. There was, however, considerable common variance between the four vanity and narcissism subscales. To integrate this common element, we factor-analysed the 4 subscales together, generating a general narcissism and vanity composite dimension, which was saved as individual factor scores. A multiple regression using the composite narcissism and vanity score and the five personality dimensions of the NEO-FFI-R were then used to predict mating effort. This produced a multiple  $R$  of 0.57 (adjusted  $R^2 = 0.28$ ), and was highly significant ( $F(6,96) = 7.74$ ,  $P < 0.001$ ). There were three

Table 1  
Means, standard deviations and reliabilities of all measures

	Mean	Standard deviation	Cronbach's $\alpha$
Neuroticism	26.3	7.4	0.81
Extraversion	31.7	4.8	0.67
Openness	28.3	6.5	0.69
Agreeableness	30.6	6.0	0.67
Conscientiousness	29.8	6.7	0.83
Mating effort	-4.5	5.2	0.67
Vanity total	0.7	11.5	0.90
Vanity – physical attractiveness	-0.5	6.7	0.89
Vanity – ability	1.2	6.4	0.82
Narcissism total	-4.4	24.5	0.93
Narcissism – power	0.6	11.8	0.87
Narcissism – exhibitionism	-4.6	7.7	0.84

Table 2  
Correlations between measures ( $n = 103$ )

	E	O	A	C	ME	V	VP	VA	Nar	NP	NE
Neuroticism (N)	-0.28 *	0.16	0.07	-0.16	-0.07	-0.37 *	-0.28 *	-0.38 *	-0.30 *	-0.36 *	-0.14
Extraversion (E)		0.08	0.01	0.03	0.36 *	0.33 *	0.31 *	0.28 *	0.38 *	0.38 *	0.42 *
Openness (O)			0.03	-0.16	-0.02	0.08	0.04	0.10	0.09	0.06	0.16
Agreeableness (A)				0.01	-0.37 *	-0.38 *	-0.39 *	-0.28 *	-0.46 *	-0.53 *	-0.33 *
Conscientiousness (C)					0.03	0.21 **	0.15	0.23 **	0.18	0.15	0.04
Mating effort (ME)						0.35 *	0.35 *	0.26 *	0.48 *	0.44 *	0.53 *
Vanity total (V)							0.89 *	0.87 *	0.72 *	0.72 *	0.55 *
Vanity – physical appearance (VP)								0.55 *	0.66 *	0.60 *	0.66 *
Vanity – ability (VA)									0.65 *	0.67 *	0.46 *
Narcissism total (Nar)										0.96 *	0.82 *
Narcissism – power (NP)											0.72 *
Narcissism – exhibitionism (NE)											

\* Correlation is significant at the 0.01 level two-tailed.

\*\* Correlation is significant at the 0.05 level two-tailed.

significant independent predictors of mating effort contributing to this outcome; higher scores on the composite narcissism–vanity score ( $t = 2.73$ ,  $P = 0.007$ ), lower scores on A ( $t = -2.34$ ,  $P < 0.002$ ), and higher scores on E ( $t = 2.83$ ,  $P < 0.006$ ). N, O, and C were unrelated to mating effort.

#### 4. Discussion

The current study examined the relationship between vanity, narcissism, personality and mating effort, seeking to replicate previous findings on personality and narcissism, and to extend them in relation to vanity and mating effort. Our hypotheses were largely upheld, although O seemed irrelevant as a correlate of either narcissism or vanity. Simple correlational analyses found that both vanity and narcissism were associated with lower N, lower A, and greater E, and that narcissism and vanity were highly related. Mating effort was associated with both vanity and narcissism. When we created a composite narcissism–vanity score and sought to predict mating effort from this and the other measures of personality, we found that mating effort was predicted by the significant independent influences of the composite narcissism–vanity score, low A, and E. This suggests that display behaviour of the kind captured in self-rating measures of narcissism and vanity predicts mating effort over personality dimensions alone.

These results were gathered naturalistically from females using a service that contributes to their physical appearance and so arguably raises their self-esteem. The establishment provided not only haircutting, styling and colouring, but also make-up application, tanning facilities, collagen implants and botox injections. It would be interesting to examine whether more unusual or physical forms of enhancing personal appearance reflect more extreme personality and narcissism, or whether, with time, these forms of adornment reflect a norm. It is remarkable how little research has been conducted into the influence of individual differences on such commonplace behaviour, although observable variation between individuals is itself marked. This is perhaps because a literature on the health risks associated with side effects arising from various forms of beauty enhancement has dominated the field (Jackson & Aiken, 2000; LoSasso, Rapport, Axelrod, & Whitman, 2002). Although physical health justifiably dominates concerns about the consequences of self-enhancement, individual factors are also important; for example, whilst breast implants do not predict greater mortality associated with cancer in women, suicide is over-represented in such populations (McLaughlin, Wise, & Lipworth, 2004).

The  $r/K$  continuum of high parental investment and low reproductive rates versus the reverse provides a further model for considering the findings in this study and their implications. Figueredo et al. (2005) found a “ $K$ -Factor” loaded  $-0.51$  on mating effort, and given the negative correlations narcissism and vanity have with mating effort, it may be that persons who are less interested in their physical appearance generally also demonstrate greater propensity to  $K$ . An intriguing observation supporting this view derived from staff at the salon where the current study was conducted; clients with more professional jobs such as lawyers and doctors were less obviously interested in their physical appearance than persons in service jobs such as shop or promotions work. Professional women chose to spend their money on services such as massage, facials and a regular easily managed hairstyle, whereas service workers were more inclined to spend their money on botox injections, tanning products and hair colouring. Whilst this may

reflect the greater self-esteem for persons in professional occupations, it may have more distal meaning; that an individual seeking a long-term mate is more inclined to invest in enduring traits such as intellectual prowess, or financial or professional success, rather than more ephemeral and transient qualities such as physical appearance. The current study did not code education or occupation, so this hypothesis cannot be tested using the data set above.

Finally, one should not forget male narcissism and vanity; the male cosmetics market is rapidly increasing, as is male utilisation of plastic surgery, and many other of the strategies of self-enhancement stereotypically used by females (Luciano, 2001). Rather than reflecting the feminised “metrosexual” commented on by journalists and marketeers, enhanced male attractiveness is a classic – and effective – sexual short-term strategy (Schmitt, 2005), and one might plausibly predict the mating effort scores of such men to be raised. Gymnasiums and barbershops provide further natural laboratories suitable to investigate the evolutionary and trait underpinnings of human grooming and self-presentation.

### Appendix A. The LeBel vanity scale (2003)

#### A.1. Instructions

Under each question you will see five response categories. Circle the response that best fits how you see yourself. Use the key below as a guide.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
–2	–1	0	1	2
1. If I try new things I would be good at them.				
–2	–1	0	1	2
2. I am rarely the best looking person in any room.				
–2	–1	0	1	2
3. I am more creative than most people.				
–2	–1	0	1	2
4. My looks are worth noticing.				
–2	–1	0	1	2
5. I do not impress myself in front of the mirror.				
–2	–1	0	1	2
6. I am more knowledgeable than most.				
–2	–1	0	1	2
7. I do not consider myself an attractive individual.				
–2	–1	0	1	2

**Appendix A** (*continued*)

Strongly disagree –2	Disagree –1	Neutral 0	Agree 1	Strongly agree 2
8. I can succeed at a task faster than most.	–1	0	1	2
9. I am always pleased with what I see in the mirror.	–1	0	1	2
10. My ideas are usually not as good as others'.	–1	0	1	2
11. I enjoy looking good.	–1	0	1	2
12. I am not talented at many things.	–1	0	1	2
13. I impress myself with ideas that I have.	–1	0	1	2
14. My looks are very appealing to others.	–1	0	1	2
15. I am less interesting than most people.	–1	0	1	2
16. People notice me when I enter a room.	–1	0	1	2
17. I consistently do well academically (if not in school, think in the past).	–1	0	1	2
18. I do not enjoy looking at myself.	–1	0	1	2
19. I can succeed at whatever I want.	–1	0	1	2
20. Others wish they could be as skilled as me.	–1	0	1	2
21. I do not turn heads when I walk down the street.	–1	0	1	2
22. People are jealous of the skills I have.	–1	0	1	2

## References

- Campbell, W. K. (2001). Is narcissism really so bad? *Psychological Inquiry*, *12*, 214–216.
- Campbell, W. K., & Foster, C. A. (2002). Narcissism and commitment in romantic relationships: An investment model analysis. *Personality and Social Psychology Bulletin*, *28*, 484–495.
- Campbell, W. K., Foster, C. A., & Finkel, E. J. (2002). Does self-love lead to love for others? A story of narcissistic game playing. *Journal of Personality and Social Psychology*, *83*, 340–354.
- Caruso, J. C., Witkiewitz, K., Belcourt-Dittloff, A., & Gottlieb, J. D. (2001). Reliability of scores from the Eysenck Personality Questionnaire: A reliability generalization study. *Educational and Psychological Measurement*, *61*, 675–689.
- Charles, K. E., & Egan, V. (2005). Mating effort correlates with self-reported delinquency in a normal adolescent sample. *Personality and Individual Differences*, *38*, 1035–1045.
- Davis, C., Claridge, G., & Cerullo, D. (1997). Reflections on narcissism: Conflicts about body image perceptions in women. *Personality and Individual Differences*, *22*, 309–316.
- Egan, V., & Angus, S. (2004). Is social dominance a sex-specific strategy for infidelity? *Personality and Individual Differences*, *36*, 575–586.
- Egan, V., Deary, I., & Austin, E. (2000). The NEO-FFI: Emerging British norms and an item-level analysis suggest N, A and C are more reliable than O and E. *Personality and Individual Differences*, *29*, 907–920.
- Figueredo, A. J., Vásquez, G., Hagenah Brumbach, B., Sefcek, J. A., Kirsner, B. R., & Jacobs, W. J. (2005). The K-factor: Individual differences in life history theory. *Personality and Individual Differences*, *39*, 1349–1360.
- Foster, J. D., Shrira, I., & Campbell, W. K. (2006). Theoretical models of narcissism, sexuality, and relationship commitment. *Journal of Social and Personal Relationships*, *23*, 367–386.
- Grammer, K., Fink, B., Möller, A. P., & Thornhill, R. (2003). Darwinian aesthetics: Sexual selection and the biology of beauty. *Biological Reviews of the Cambridge Philosophical Society*, *78*, 385–407.
- Jackson, K. M., & Aiken, L. S. (2000). A psychosocial model of sun protection and sunbathing in young women: The impact of health beliefs, attitudes, norms, and self-efficacy for sun protection. *Health Psychology*, *19*, 469–478.
- Jackson, L. A., Ervin, K. S., & Hodge, C. N. (1992). Narcissism and body image. *Journal of Research in Personality*, *26*, 357–370.
- Jakobwitz, S., & Egan, V. (2006). The dark triad and normal personality traits. *Personality and Individual Differences*, *40*, 331–339.
- Kubarych, T. S., Deary, I. J., & Austin, E. J. (2004). The narcissistic personality inventory: Factor structure in a non-clinical sample. *Personality and Individual Differences*, *36*, 857–872.
- Lalumière, M. L., & Quinsey, V. L. (1996). Sexual deviance, antisociality, mating effort and the use of sexually coercive behaviours. *Personality and Individual Differences*, *21*, 33–48.
- LeBel, E. P. (2003). A broader conceptualization: The vanity construct re-examined. Unpublished manuscript, University of Waterloo, Canada.
- LoSasso, G., Rapport, L., Axelrod, B., & Whitman, R. D. (2002). Neurocognitive sequelae of exposure to organic solvents and (meth)acrylates among nail-studio technicians. *Neuropsychiatry, Neuropsychology, & Behavioral Neurology*, *15*, 44–55.
- Luciano, L. (2001). *Looking good: Male body image in modern America*. New York, USA: Hill and Wang.
- McCrae, R. R., & Costa, P. T. (2004). A contemplated revision of the NEO five-factor inventory. *Personality and Individual Differences*, *36*, 587–596.
- McLaughlin, J., Wise, T., & Lipworth, L. (2004). Increased risk of suicide among patients with breast implants: Do the epidemiologic data support psychiatric consultation? *Psychosomatics*, *45*, 277–280.
- Miller, G. (2000). *The mating mind: How sexual choice shaped the evolution of human nature*. New York: Doubleday.
- Raskin, R., & Hall, C. S. (1979). A narcissistic personality inventory. *Psychological Reports*, *45*, 590.
- Raskin, R., & Hall, C. S. (1981). The narcissistic personality inventory: Alternate form reliability and further evidence of construct validity. *Journal of Personality Assessment*, *45*, 159–162.
- Raskin, R., & Terry, H. (1988). A principal components analysis of the narcissistic personality inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology*, *54*, 890–902.
- Rhodes, G. (2006). The evolutionary psychology of facial beauty. *Annual Review of Psychology*, *57*, 199–226.

- Robins, R. W., & John, O. P. (1997). Effects of visual perspective and narcissism on self-perception: Is seeing believing? *Psychological Science*, 8, 37–42.
- Rowe, D. C., Vazsonyi, A. T., & Figueredo, A. J. (1997). Mating-effort in adolescence: A conditional or alternative strategy? *Personality and Individual Differences*, 23, 105–115.
- Schmitt, D. (2005). Fundamentals of Human Mating Strategies. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 258–291). Hoboken, NJ, US: John Wiley & Sons.