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Mate preferences in Brazil: Evolved desires and cultural evolution over three decades

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ABSTRACT

Mate preferences provide unique windows into evolved mating psychology and extant cultural values. The current study used two research instruments—one ranking and one rating—to examine mate preferences in Brazil. We compared modern Brazilians ($n = 1186$) with a Brazilian sample studied three decades earlier, in 1984 ($n = 630$). Mate preferences for mutual attraction and love, kindness, and intelligence remained important and relatively invariant over time. Sex differences in mate preferences for cues to *fertility* (relative youth, physical attractiveness) and *resources* (earning capacity, financial prospects, social status) also remained relatively invariant over time. Several changes in mate preferences emerged over time for both men and women, including a stronger preference for mates who have good financial prospects and a dramatic decline in the desire for children. Discussion highlights limitations of the study, and stresses the importance of mate preferences as windows into evolved mating psychology and both the expression and reflection of cultural values.

Mate preferences are scientifically important in several contexts (Buss & Schmitt, 1993). First, mate preferences influence who is chosen and who is excluded from mating, influencing the direction of sexual selection (Darwin, 1871). Second, preferences determine who is considered high and low in mate value. Mate value, in turn, influences variables ranging from the desirability of the mate one can attract to social status (Buss, 2015). Mate value is a key component of association value, and is important in friendships, coalitions, and kin relationships (Sugiyama, 2005). Third, mate preferences influence which mate attraction and retention tactics are effective—tactics that embody qualities desired by the individual someone is trying to attract or retain (Schmitt & Buss, 1996). Fourth, mate preferences provide a window into cultural values, that is, what people collectively deem socially acceptable or unacceptable. Changes in mate preferences over time can assay the cultural changes of values, and also reflect extant cultural values (Lei, Wang, Shackelford, & Buss, 2011; Kamble, Shackelford, Pham, & Buss, 2014). The study of human mate preferences across cultures and across time represents an important ongoing scientific endeavor. Yet surprisingly little is known about which mate preferences remain stable over time and which change.

Brazil is especially interesting for studying mate preferences. Brazil is one of the most diverse cultures in the world, containing descendants of Indigenous peoples, Portuguese settlers, as well as African, European, and Asian immigrants. Brazil has experienced a 50% increase in population size from 1984 to 2014. It has also experienced a rapid rise in online dating sites like Tinder, OK Cupid, and Match.com, increasingly used to find mating partners. Brazil experienced a significant decline in fertility, with the Total Fertility Rate declining from 4.4 children per woman in 1980 to 1.77 children per woman in 2013 (Cavenaghi & Alves, 2011; Rios-Neto, 2012).

The Brazilian economy has also experienced a significant transformation, especially during the past decade. Beginning in 2004, GDP (Gross Domestic Product) per person grew at a rate of 2.5% from 2004 to 2014, which is more than three times faster than the rate from 1995 to 2003 (Weisbrot, Johnston, & Levebvre, 2014).

With these considerable changes in economy, population size, marriage patterns, and fertility, a key question is whether Brazilian mate preferences have remained stable or changed over the past several decades.

The dramatic cultural changes in Brazil also provide opportunities to test key evolutionary hypotheses about evolved sex differences in mate preferences. Because fertility cannot be observed directly, evolutionary hypotheses have predicted that men more than women value physical appearance in mates because appearance provides a wealth of observable cues to fertility, such as clear skin, full lips, and lustrous hair (Buss, 1989; Symons, 1979; Trivers, 1972). Because human fertility declines with age, evolutionary psychologists also hypothesized that men have evolved preferences for young mates (Symons, 1979; Williams, 1975). Women, relative to men, must invest more resources in their offspring (e.g., nine months of pregnancy). Thus, evolutionists predict that women have evolved preferences for mates who are able to acquire

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resources and who are willing to invest resources in them. These sex differences have been widely documented to be universal across cultures (e.g., Badahdah & Tiemann, 2005; Buss, 1989; Khallad, 2005; Kamble et al., 2014; Lei et al., 2011; Li et al., 2002). This study was partly designed to examine whether these sex differences persist in a culture that has undergone dramatic social and economic changes over the past 30 years.

1. Methods

1.1. Participants

The present research consisted of a 1984 Brazilian sample of 630 people (355 females and 275 males) and a 2014 sample of 1186 Brazilians (719 females and 467 males). For the 1984 sample, we used data from the 37-Culture Mate Selection Project (Buss, 1989). Participants in 1984 were drawn from several different cities within Brazil: Brasilia, São Paulo, Curitiba, and Rio de Janeiro. The 2014 sample was draw from several different places (universities, companies and health clinics) and participation was voluntary. Seventy per cent of the sample came from 4 major states in Brazil (Minas Gerais, Amazonas, São Paulo and Rio de Janeiro). The remaining 30% consisted of participants from 15 other states in Brazil. For relationship status, the 2014 sample consisted of 27.2% married people, 30% dating or engaged, 3.2% divorced and 39% were single people. The 1984 sample consisted of 11% married people and 89% single people.

1.2. Materials

Participants completed a Brazilian Portuguese version of the Mate Preference Scale (Buss, 1989). The instrument has two sections: ranking and rating. For the ranking, participants were presented with 13 characteristics potentially present in mates or marriage partners, and ranked them from the *Most Desirable* (1) to the *Least Desirable* (13) in a mate (see Buss & Barnes, 1986). For rating, participants were presented with 18 factors/characteristics. Participants rated whether each was *indispensable* (3 points), *important, but not indispensable* (2 points), *desirable, but not very important* (1 point) and *irrelevant or unimportant* (0 points). Both instruments were translated from English into Brazilian Portuguese by a bilingual speaker and back-translated by a second bilingual speaker. A third bilingual speaker resolved discrepancies.

2. Results

2.1. Age and mate preferences in a partner

Table 1 shows participant's ages, ages at which they preferred to marry, and age difference preferred between themselves and their spouse. Participants from the 2014 sample were older than participants from the 1984 sample by roughly four years. We correlated age with mate preferences (see Tables 4 and 5). The correlations were uniformly low. With few exceptions, the age correlations were not significant across either sex across time. Two exceptions occurred for the 2014 sample. First, the importance attached to chastity (virginity) was negatively correlated with age; older individuals valued this attribute slightly less than younger individuals. Second, older individuals valued "healthy" in a mate slightly more than younger individuals.

In the 1984 sample, the age at which participants preferred to marry differed significantly between men (28.71 years) and women (24.63 years). We found similar sex difference in the 2014 sample (men: 28.15 years; women: 24.99 years). These sex differences in age-at-marriage preferences are consistent with those documented in other cultures (Buss, 1989; Lei et al., 2011).

Men from both samples preferred spouses younger than themselves (1984: 3.22 years younger; 2014: 2.38 years younger). Brazilian women preferred spouses older than themselves—4.01 and 3.59 years older for the 1984 and 2014 samples, respectively. These sex differences have large effect sizes, with *d*s of 2.20 and 1.07. These are among the largest sex differences documented in the psychological literature (see, e.g., Cohen, 1988; Geary, 2009).

2.1.1. Cultural changes in mate preferences

Tables 2 and 3 show sex differences and cross-time differences in mate preferences for the ranking (Table 2) and rating instruments (Table 3)—means, standard deviations, *t*-tests for sex differences, *t*-tests for cross-time differences, and *d* statistics for magnitudes of effect. Because the samples are not strictly comparable, we err conservatively, interpreting only cross-time differences that show moderate or large effect sizes, as gauged by Cohen's *d* statistic (Cohen, 1988).

2.1.2. Mate preferences that changed in valuation over time

Among the most dramatic changes is the decline in importance of "desire for home and children" ($d = -1.00$ for men and -0.62 for women) (Table 3). On the ranking instrument, both sexes decreased in the importance of a mate who "wants children." These preference changes correspond to the dramatic drop in actual fertility rates in Brazil over the past few decades. For men, the importance of "chastity" decreased, from 0.93 in 1984 to 0.38 in 2014 (Table 3), closer to low levels of valuation seen in western European countries such as Sweden and The Netherlands. This finding comports with cultural changes seen in other countries, such as mainland China, India, and the United States, which also experienced a marked decrease in the importance of chastity in a spouse over the past few decades (Buss, Shackelford, Kirkpatrick, & Larsen, 2001; Kamble et al., 2014; Lei et al., 2011).

2.2. Sex differences in mate preferences

2.2.1. Resources

Evolutionary hypotheses predict sex differences in the importance of "good earning capacity," "good financial prospects," and the qualities linked with resource acquisition, such as "social status" and "ambition and industriousness." These were among the largest sex differences at both times; women, relative to men, placed substantially more importance on these qualities. The magnitude of the sex difference on "good

Table 1
Age and age preference for marriage.

Age variable		1984	2014	Sex diff. 1984		Sex diff. 2014		Cross-time diff	
				t	*d*	*t*	*d*	*t*	*d*
Age of participants	Male	22.84 (4.59)	26.74 (6.57)	3.11**	−0.25	−1.11	0.07	−8.68***	0.66
	Female	21.72 (4.47)	27.16 (6.27)					−14.60***	0.95
Age prefer to marry	Male	28.71 (3.92)	28.15 (9.94)	12.24***	−1.09	5.10***	−0.30	0.81	−0.07
	Female	24.63 (3.60)	24.99 (10.63)					−0.57	0.04
Age difference preferred between self and spouse	Male	−3.22 (3.38)	−2.38 (5.12)	−23.53***	2.20	−17.96***	1.07	−2.07*	0.18
	Female	4.01 (3.22)	3.59 (5.88)					1.14	−0.08

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

Table 2
Sex and cross-time differences in mate preferences: ranking instrument.

Mate preference		1984	2014	Sex diff. 1984		Sex diff. 2014		Cross-time diff	
				t	*d*	*t*	*d*	*t*	*d*
Kind & understanding	Male	2.02 (2.00)	2.63 (2.52)	2.31*	−0.20	1.95	−0.12	−3.26**	0.26
	Female	1.69 (1.22)	2.37 (2.01)					−5.35***	0.37
Religious	Male	10.34 (3.13)	10.49 (4.06)	0.10	−0.01	6.35***	−0.38	−0.52	0.04
	Female	10.31 (3.47)	8.89 (4.39)					4.91***	−0.34
Exciting personality	Male	3.33 (2.21)	6.22 (3.08)	−1.92	0.17	−10.40***	0.62	−12.88***	1.02
	Female	3.73 (2.43)	8.34 (3.63)					−19.82***	1.38
Creative & artistic	Male	7.27 (2.97)	6.70 (2.99)	0.00	0.00	−5.66***	0.34	2.39*	−0.19
	Female	7.27 (3.03)	7.79 (3.39)					−2.27*	0.16
Good housekeeper	Male	8.83 (2.56)	7.56 (2.93)	−5.73***	0.50	−0.31	0.02	5.70***	−0.45
	Female	10.09 (2.47)	7.61 (2.87)					12.83***	−0.90
Intelligent	Male	4.04 (2.24)	3.81 (2.75)	0.81	−0.07	1.89	−0.11	1.12	−0.09
	Female	3.89 (2.00)	3.52 (2.37)					2.30*	−0.16
Good earning capacity	Male	10.16 (2.45)	8.45 (2.34)	8.85***	−0.78	8.63***	−0.51	9.04***	−0.72
	Female	8.17 (2.67)	7.17 (2.58)					5.45***	−0.38
Wants children	Male	8.13 (2.83)	9.04 (3.12)	−0.93	0.08	6.77***	−0.40	−3.80***	0.30
	Female	8.36 (2.90)	7.69 (3.50)					2.87**	−0.20
Easygoing	Male	5.52 (2.45)	5.09 (3.21)	1.79	−0.16	−3.23**	0.19	1.81	−0.14
	Female	5.14 (2.43)	5.70 (3.17)					−2.73**	0.19
Good heredity	Male	9.93 (2.45)	8.75 (2.91)	−0.55	0.05	4.47***	−0.27	5.39***	−0.43
	Female	10.05 (2.55)	7.93 (3.18)					10.07***	−0.70
College graduate	Male	10.08 (2.54)	8.64 (2.73)	3.01**	−0.26	2.91**	−0.17	6.79***	−0.54
	Female	9.39 (2.65)	8.10 (3.30)					5.89***	−0.41
Physically attractive	Male	5.83 (2.84)	6.35 (3.51)	−5.21***	0.46	−12.15***	0.72	−1.98*	0.16
	Female	7.19 (3.07)	8.73 (3.14)					−7.08***	0.49
Healthy	Male	5.50 (2.46)	7.26 (3.53)	−1.09	0.10	0.55	−0.03	−6.90***	0.55
	Female	5.74 (2.58)	7.14 (3.66)					−5.93***	0.41

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

Table 3
Sex and cross-time differences in mate preferences: rating instrument.

Mating preference		1984	2014	Sex diff. 1984		Sex diff. 2014		Cross-time diff	
				t	*d*	*t*	*d*	*t*	*d*
1. Good cook and housekeeper	Male	1.62 (0.83)	1.44 (0.82)	2.58*	−0.21	−0.97	0.06	2.93**	−0.22
	Female	1.45 (0.82)	1.48 (0.71)					−0.65	0.04
2. Pleasing disposition	Male	2.55 (0.66)	1.98 (0.83)	−2.46*	0.20	−9.26***	0.55	9.74***	−0.74
	Female	2.67 (0.55)	2.39 (0.71)					6.35***	−0.41
3. Sociability	Male	2.35 (0.73)	2.10 (0.86)	−1.01	0.08	−2.26***	0.43	4.10***	−0.31
	Female	2.41 (0.67)	2.44 (0.76)					−0.77	0.05
4. Similar educational background	Male	2.11 (0.78)	1.99 (0.88)	−2.45*	0.20	−3.34***	0.20	1.86	−0.14
	Female	2.27 (0.80)	2.17 (0.87)					1.87	−0.12
5. Refinement, neatness	Male	1.83 (0.86)	2.26 (0.75)	−1.59	0.12	−4.61***	0.27	−7.03***	0.53
	Female	1.94 (0.85)	2.45 (0.69)					−10.48***	0.68
6. Good financial prospect	Male	1.24 (0.89)	1.44 (0.82)	−10.07***	0.81	−9.89***	0.59	−3.12**	0.24
	Female	1.91 (0.78)	1.90 (0.76)					0.20	−0.01
7. Chastity (no previous sexual intercourse)	Male	0.93 (1.08)	0.38 (0.86)	7.61***	−0.61	1.82	−0.11	7.66***	−0.58
	Female	0.36 (0.78)	0.29 (0.72)					1.45	−0.09
8. Dependable character	Male	2.85 (0.45)	1.98 (0.72)	−2.04*	0.17	−8.38***	0.50	18.07***	−1.37
	Female	2.91 (0.35)	2.36 (0.78)					12.61***	−0.83
9. Emotional stability & maturity	Male	2.51 (0.63)	2.40 (0.67)	−5.28***	0.43	−4.70***	0.28	2.25*	−0.17
	Female	2.76 (0.51)	2.58 (0.61)					4.72***	−0.31
10. Desire for home and children	Male	2.36 (0.91)	1.46 (0.89)	−0.22	0.02	−5.94***	0.35	12.80***	−1.00
	Female	2.38 (0.87)	1.80 (0.97)					9.34***	−0.62
11. Favorable social status	Male	0.97 (0.85)	1.08 (0.86)	−5.65***	0.45	−4.19***	0.25	−1.67	0.13
	Female	1.36 (0.84)	1.30 (0.91)					0.95	−0.06
12. Good looks	Male	1.89 (0.75)	1.90 (0.82)	3.20**	−0.26	5.39***	−0.32	−0.16	0.01
	Female	1.68 (0.86)	1.64 (0.79)					0.74	−0.05
13. Similar religious background	Male	0.88 (1.03)	0.84 (0.92)	−1.23	0.10	−6.42***	0.38	0.56	−0.04
	Female	0.98 (0.99)	1.23 (1.08)					−3.63***	0.24
14. Ambition & industriousness	Male	1.70 (0.90)	1.98 (0.82)	−7.25***	0.59	−3.54***	0.21	−4.21***	0.32
	Female	2.21 (0.82)	2.15 (0.80)					1.16	−0.08
15. Similar political background	Male	0.78 (0.91)	0.72 (0.94)	−2.90**	0.23	−2.27*	0.14	0.83	−0.06
	Female	1.00 (0.95)	0.85 (0.94)					2.42*	−0.16
16. Mutual attraction-love	Male	2.95 (0.26)	2.66 (0.68)	−0.89	0.07	−5.08***	0.30	6.69***	−0.51
	Female	2.96 (0.23)	2.83 (0.47)					5.10***	−0.33
17. Good health	Male	2.34 (0.71)	2.13 (0.83)	0.58	−0.05	−4.47***	0.27	3.46***	−0.26
	Female	2.31 (0.74)	2.34 (0.71)					−0.62	0.04
18. Education & intelligence	Male	2.45 (0.66)	2.57 (0.62)	−3.25**	0.27	−8.34***	0.50	−2.31*	0.18
	Female	2.62 (0.56)	2.82 (0.41)					−6.64***	0.44

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

Table 4
Correlations between mate preferences and age: rating instrument.

Mating preference		1984	2014	Overall
		Age correlation	Age correlation	Age correlation
1. Good cook and housekeeper	Male	0.16**	−0.14**	−0.08*
	Female	0.08	−0.03	0.01
2. Pleasing disposition	Male	−0.07	−0.08	−0.17***
	Female	0.02	0.02	−0.06*
3. Sociability	Male	−0.05	−0.01	−0.06
	Female	0.02	0.11**	0.09**
4. Similar educational background	Male	0.00	−0.11*	−0.10*
	Female	0.11*	0.05	0.03
5. Refinement, neatness	Male	0.05	−0.23***	−0.05
	Female	0.05	−0.10**	0.08**
6. Good financial prospect	Male	0.07	−0.11*	−0.02
	Female	0.13*	−0.16***	−0.08*
7. Chastity (no previous sexual intercourse)	Male	−0.06	−0.19***	−0.21***
	Female	−0.07	−0.21***	−0.17***
8. Dependable character	Male	−0.03	−0.09*	−0.23***
	Female	−0.02	−0.01	−0.16***
9. Emotional stability & maturity	Male	0.02	−0.02	−0.03
	Female	−0.02	0.07*	−0.01
10. Desire for home and children	Male	0.04	−0.05	−0.15***
	Female	0.04	0.02	−0.09**
11. Favorable social status	Male	0.10	−0.09*	−0.01
	Female	0.20***	−0.07	−0.01
12. Good looks	Male	0.03	−0.05	−0.03
	Female	0.04	−0.10**	−0.07*
13. Similar religious background	Male	0.10	−0.15**	−0.07*
	Female	0.06	−0.05	0.02
14. Ambition & industriousness	Male	0.04	0.07	0.10**
	Female	0.04	0.00	−0.01
15. Similar political background	Male	0.18**	−0.01	0.03
	Female	0.14*	−0.02	−0.01
16. Mutual attraction-love	Male	0.06	0.01	−0.06
	Female	−0.08	0.07	−0.02
17. Good health	Male	0.04	0.07	0.02
	Female	0.11*	−0.01	0.03
18. Education & intelligence	Male	−0.06	0.02	0.03
	Female	0.06	−0.05	0.07*

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

earning capacity" showed *d*s of −0.78 and 0.051 in 1984 and 2014, respectively (Table 2). The magnitudes of the sex difference for "good financial prospect" were −0.81 and −0.59 for the two time periods.

The sex differences in the importance of social status were moderate to small but consistent over time, with *d*s reaching −0.45 and −0.25 (Table 3) for the two time periods. Similarly, "ambition and industriousness" showed moderate sex differences in the predicted direction at both time periods, with *d*s of −0.59 and −0.21. Women (relative to men) more valued "education and intelligence" at both time periods. These results suggest strong continuity over time of sex differences in preferences for mates who have financial resources, and qualities indicating future resource acquisition–social status, ambition, education, and intelligence (Buss, 2015).

2.2.2. Physical attractiveness

Hypothesis predicted that men (relative to women) more strongly value cues to fertility, such as physical attractiveness (Buss, 1989). Using ranking, the prediction was confirmed in both samples: *d*s = 0.46 and 0.72 for 1984 and 2014 (Table 2). Using rating, the prediction was also confirmed in both samples for "good looks," with *d*s of 0.26 and 0.32. Together with men's strong preference for a young spouse, these findings support the evolutionary psychological hypothesis that men place more importance on observable cues to fertility.

3. Discussion

Mate preferences provide windows into evolved mating psychology and cultural values. The present study investigated the cross-times differences in mating preferences in Brazil. We used both rating and ranking instruments to compare a modern Brazilian sample with a sample studied three decades earlier.

We found that mate preferences for mutual attraction and love, kindness, and intelligence remained important and stable over time. Sex differences in mate preferences for cues to *fertility* and *resources* also remained relatively invariant over time. We observed several time differences for both men and women, including a stronger preference for mates who have good financial prospects and a dramatic decline in the desire for children.

Several important limitations must be noted. First, the samples are not representative of the diverse country of Brazil. The religious, cultural, and origin of ancestor status, and diversity within and across the geographical regions, suggest caution in generalizing the results. Second, the 2014 sample was several years older than the 1984 sample, so differences between the two samples could be partly due to the participants' age. The low effect sizes of the correlations between mate preferences and age, however, suggest that the age difference between the two samples did not significantly affect the results in a way that would alter the central conclusions about cross-time continuity, evolved gender differences, and cultural shifts. With these limitations in mind, we turn to the three central results of the study—the continuity of shared mate preferences, the robust sex differences, and cultural changes in mating values.

3.1. Continuity of shared mate preferences—love, emotional stability, and intelligence

On the ranking instrument, "kind and understanding" emerged as the most desirable characteristic in a spouse for both sexes at both time periods. For the rating instrument, "mutual attraction-love,"

Table 5
Correlations between mate preferences and age: ranking instrument.

Mating preference		1984	2014	Overall
		Age correlation	Age correlation	Age correlation
Kind & understanding	Male	0.28***	0.07	0.14***
	Female	−0.01	−0.04	0.04
Religious	Male	0.03	0.05	0.05
	Female	0.05	0.06	−0.01
Exciting personality	Male	0.24**	−0.02	0.16***
	Female	0.14*	0.12*	0.31***
Creative & artistic	Male	−0.11	0.06	−0.01
	Female	−0.03	−0.04	0.00
Good housekeeper	Male	−0.14*	0.11*	−0.02
	Female	0.05	0.04	−0.12**
Intelligent	Male	0.06	0.10*	0.07
	Female	−0.06	−0.08*	−0.10**
Good earning capacity	Male	−0.16*	−0.07	−0.18***
	Female	−0.11	0.09*	−0.03
Wants children	Male	−0.03	0.07	0.09*
	Female	0.03	−0.01	−0.04
Easygoing	Male	0.08	−0.03	−0.03
	Female	0.00	−0.15***	−0.08*
Good heredity	Male	−0.20**	−0.03	−0.12***
	Female	−0.11	0.16***	−0.03
College graduate	Male	−0.13*	−0.03	−0.12***
	Female	0.00	0.01	−0.07*
Physically attractive	Male	0.12	−0.07	−0.01
	Female	0.15**	−0.07*	0.07*
Healthy	Male	0.04	−0.19***	−0.05
	Female	−0.14*	−0.12**	−0.04

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

"emotional stability and maturity," and "education and intelligence" emerged as the most valued qualities in mates for both sexes for both time periods. The importance of "mutual attraction-love" finding adds to growing evidence that love is a cross-cultural, universal emotion linked to long-term committed mating (Buss, 1987; Frank, 1988; Jankowiak & Fischer, 1992).

3.2. Cultural changes over time

The most important cross-time changes were a decrease in the importance of a desire for children and a desire for home and children. These changes mirror the dramatic decreases in fertility in Brazil over the past few decades. The finding that changes in stated mate preferences for children mirror changes in actual fertility patterns suggests that the psychology of mate preferences track actual mating outcomes. Brazilian men also decreased in the valuation placed on virginity in a mate. This change mirrors cultural changes seen elsewhere in the world–in China, India, and the United States.

3.3. Sex differences in mate preferences

The current study found strong support for the evolutionary psychological hypotheses about sex differences in mate preferences. Despite dramatic cultural changes in some values, men more than women continue to prefer mates who are younger and physically attractive. Youth is a known correlate of female fertility, which declines predictably with increasing age. Standards of physical attractiveness, which include smooth skin, white teeth, lustrous hair, symmetrical features, and low waist-to-hip ratio, are known to be linked to youth, health, and female fertility (Sugiyama, 2005). Our study adds importantly to the rapidly growing body of research that supports the hypothesis that men have evolved mate preferences for female cues to fertility.

Women more than men in both samples valued resources, whether expressed as "good earning capacity" or "good financial prospects." Women more also desired qualities known to be linked with resource acquisition—social status, education and intelligence, and ambition and industriousness. These results support the hypothesis that women have an evolved mate preference for mates who have the resources and resource-acquisition abilities to provide for them and their children (Buss, 2015; Schmitt, 2015).

Brazil has undergone cultural changes over the past three decades. Two mating-related changes are the increase in online dating and the fall in fertility. Changes in mate preferences appear to reflect changes in cultural values, particularly with respect to the drop in desire for mates who want children. Despite the many cultural changes, women substantially more than men continue to value resources and resource acquisition potential in a mate. Men continue to value cues to fertility in a mate, notably youth and physical attractiveness. In sum, this study of mate preferences in one culture over three decades provides a unique window into evolved mating psychology and cultural changes in values.

References

Badahdah, A. M., & Tiemann, K. A. (2005). Mate selection criteria among Muslims living in America. *Evolution and Human Behavior*, *26*, 432–440.

Buss, D. M. (1987). Love acts: The evolutionary biology of love. In R. Sternberg, & M. Barnes (Eds.), *The Psychology of Love*. New Haven, Conn.: Yale University Press.

Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, *12*, 1–49.

Buss, D. M. (2015). *Evolutionary psychology: The new science of the mind* (5rd ed.). Boston, MA: Allyn & Bacon.

Buss, D. M., & Barnes, M. F. (1986). Preferences in human mate selection. *Journal of Personality and Social Psychology*, *50*, 559–570.

Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, *100*, 204–232.

Buss, D. M., Shackelford, T. K., Kirkpatrick, L. A., & Larsen, R. J. (2001). A half century of American mate preferences: The cultural evolution of values. *Journal of Marriage and the Family*, *63*, 491–503.

Cavenaghi, S., & Alves, J. (2011). Diversity of childbearing behavior in the context of below-replacement fertility in Brazil. *Expert Paper, Population Division, n. 8*.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* Hillsdale, NJ: Erlbaum.

Darwin, C. (1871). *The descent of man and selection in relation to sex.* London: John Murray.

Frank, R. (1988). *Passions within reason.* New York: Norton.

Geary, D. (2009). *Male, female: The evolution of human sex differences.* Washington: American Psychological Association.

Jankowiak, W., & Fischer, E. (1992). A cross-cultural perspective on romantic love. *Ethnology*, *31*, 149–155.

Kamble, S., Shackelford, T. K., Pham, M. N., & Buss, D. M. (2014). Indian mate preferences: Continuity, sex differences, and cultural changes across a quarter of a century. *Personality and Individual Differences*, *70*, 150–155.

Khallad, Y. (2005). Mate selection in Jordan: Effects of sex, socio-economic status, and culture. *Journal of Social and Personal Relationships*, *22*, 155–168.

Lei, C., Wang, Y., Shackelford, T. K., & Buss, D. M. (2011). Chinese mate preferences: Cultural evolution and continuity across a quarter century. *Personality and Individual Differences*, *50*, 678–683.

Li, N. P., Bailey, J. M., Kenrick, D. T., & Linsemeier, J. A. W. (2002). The necessities and luxuries of mate preferences: Testing the tradeoffs. *Journal of Personality and Social Psychology*, *82*, 947–955.

Rios-Neto, E. (2012). Below Replacement Fertility in Brazil and the educational gradient: Is there a path towards lowest low fertility? *Congreso de La Asociación latinoamericana de Población, 5* Uruguay.

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.

Schmitt, D. P. (2015). Fundamentals of human mating strategies. In D. M. Buss (Ed.), *The evolutionary psychology handbook* (2nd ed.). New York, NY: Wiley.

Sugiyama, L. (2005). Physical attractiveness in adaptationist perspective. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 292–342). New York: Wiley.

Symons, D. (1979). *The evolution of human sexuality.* New York: Oxford.

Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man: 1871–1971* (pp. 136–179). Chicago: Aldine.

Weisbrot, M., Johnston, J., & Levebvre, S. (2014). *The Brazilian economy in transition: Macroeconomic policy, labor and inequality.* Center for Economic and Policy Research.

Williams, G. C. (1975). *Sex and evolution.* Princeton, NJ: Princeton University Press.