



For Love or Money? The Influence of Personal Resources and Environmental Resource Pressures on Human Mate Preferences

Rindy C. Anderson* & Casey A. Klofstad†

* Department of Biology, Duke University, Durham, NC, USA

† Department of Political Science, University of Miami, Coral Gables, FL, USA

Correspondence

Casey A. Klofstad, Department of Political Science, University of Miami, 5250 University Drive, Coral Gables, FL 33146-6534, USA.
E-mail: klofstad@gmail.com

Received: October 12, 2011

Initial acceptance: December 9, 2011

Final acceptance: May 29, 2012

(S. Foster)

doi: 10.1111/j.1439-0310.2012.02077.x

Abstract

A growing body of evidence shows that human mating preferences, like those of other animal species, can vary geographically. For example, women living in areas with a high cost of living have been shown to seek potential mates that can provide resources (e.g., large salaries). In this study, we present data from a large ($N = 2944$) nationally representative (United States) sample of Internet dating profiles. The profiles allowed daters' to report their own income and the minimum income they desired in a dating partner, and we analyzed these data at the level of zip code. Our analysis shows that women engage in more resource seeking than men. We also find a positive relationship between cost of living in the dater's zip code and resource seeking among both men and women. Importantly, however, this relationship disappears if one's own income is accounted for in the analysis; that is, individuals of both sexes seek mates with an income similar to their own, regardless of local resource pressures. Our data highlight the importance of considering individual characteristics when measuring the effects of environmental factors on behavior.

Introduction

Evolutionary theories of sexual selection (Darwin 1871) and parental investment (Trivers 1972) make several predictions about differences in male and female mate choice preferences. For example, because females must invest more physical resources in offspring, they tend to seek mates that are best able to obtain and secure resources (i.e., food, shelter). Males, by contrast, tend to seek multiple mating partners and the most fecund mates. These predictions have been validated for a variety of mating systems in both human and non-human species (Buss 1989; Andersson 1994; Gangestad & Simpson 2000; Geary et al. 2004).

These patterns of mate choice behavior, however, can be influenced by environmental variables (Jennions & Petrie 1997; Qvarnstrom & Forsgren 1998; Widemo & Saether 1999). More specifically, studies of mate choice in non-human species have shown that environmental factors can lead to differences between populations in mate choice criteria and

in how strongly mate preferences are expressed. For example, in the guppy (*Poecilia reticulata*), females from different populations vary in their preferences for particular patterns of male coloration. These differences in preference correlate with water color characteristics across the populations, suggesting that female preferences have evolved variably in different water environments (Houde & Endler 1990; Endler & Houde 1995). An example of the effects of predation intensity on female mating behavior comes from the same species. In an experiment, female guppies from a population under predation by the pike cichlid (*Crenicichla alta*) preferred brightly colored males in the absence of the predator, but its presence reduced sexual activity and preference for bright males; the mating behavior of females from a population free from the predator was unaffected by its presence (Godin & Briggs 1996). Another way that environmental variation influences mating behavior is the relationship between variation in resource quality or availability and female condition. Examples include the black field cricket (*Teleogryllus commodus*), in

which dietary protein availability predicted female sexual responsiveness and the strength of preference for male call features (Hunt et al. 2005), the stalk-eyed fly (*Cyrtodiopsis dalmanni*) in which corn-fed females showed stronger preference for large-eyespan males than sucrose-fed females (Hingle et al. 2001), and in *Schizocosa* wolf spiders, in which females fed a diet of high quality mated more frequently with males fed the same diet as opposed to poor-diet males, while poor-diet females were not selective (Hebets et al. 2008). Finally, environmental factors affecting population density can alter female mating behavior, for example in the red deer (*Cervus elaphus* L.), in which high population density is associated with a female-biased adult sex ratio, which leads to reduced female mate selectivity (Clutton-Brock et al. 1997).

Such observations have led to studies of whether human mate preferences are also influenced by environmental factors (e.g., Gangestad & Simpson 2000; McGraw 2002; Hill & Reeve 2004; Low 2007; Moore et al. 2006; Moore & Cassidy 2007; Sear & Marlowe 2009; DeBruine et al. 2010). In their review of the evolution of human mating practices, Gangestad & Simpson (2000) argued that geographic variation in human mate choice is a consequence of the trade-off faced by men and women between short-term and long-term mating strategies [also see Buss & Schmitt (1993) on 'Sexual Strategies Theory'] and that environmental variation can affect the costs and benefits associated with these strategies. For example, women typically seek mates that are willing to provide resources for offspring (a long-term strategy). However, women residing in areas with high levels of pathogens are more likely to adopt a short-term strategy and value physical attractiveness over provisioning ability when selecting a mate (Gangestad & Buss 1993), perhaps to obtain 'good genes' from a healthy-looking male and to avoid coming into contact with sick-looking individuals (Gangestad & Simpson 2000).

Using this logic of conditional mating strategies, McGraw (2002) argued that human females who reside in environments with higher resource pressures should seek males with superior resource provisioning capacity. McGraw tested this prediction through a content analysis of 'lonely hearts advertisements' (LHAs) collected from newspapers published in the United States in 1999, coupled with demographic information on the communities in which the advertisements were collected. These data show that as cost of living increases, the LHAs posted by women were more likely to contain language indicating a desire for a mate that has the capacity to provide financial resources. Moreover, and in direct contrast to

research that shows that humans mate assortatively on income (Weiderman & Allgeier 1992; Waynforth & Dunbar 1995; Eagly & Wood 1999; Moore et al. 2006), the effect of cost of living on resource seeking was found to be independent of the women's own financial status (McGraw 2002, p. 312).

In the present study, we re-evaluate the local resource pressure hypothesis for four reasons. First, over the last decade, the income gap between American women and men (which favors men) has continued to shrink (Institute for Women's Policy Research's 2010). Given that females who have more control over their own resources are less likely to seek resources from potential mates (Gangestad & Simpson 2000; Moore et al. 2006; Moore & Cassidy 2007), this change in the socioeconomic status of American women should be considered when evaluating women's mate preferences.

Second, during the past decade dating advertisements have shifted from brief LHAs published in newspapers to extensive questionnaire-style profiles posted on searchable Internet dating Web sites (Madden & Lenhart 2006; Center for the Digital Future 2009). Having easy access to such detailed information about potential mates could, theoretically, alter human mating strategies (Feliciano et al. 2009). For example, having easier access to information on the income of potential mates might increase humans' preference for resource provision. Conversely, having greater access to a great deal of information on other characteristics could potentially lead humans to select on dimensions other than resource provision, such as lifestyle, personality, and values.

Third, there are elements of the McGraw (2002) study that can be refined to more accurately assess the influence of local resource pressures on mate selection: (1) As a corollary to the above, brief LHAs do not provide as much detailed information on dating preferences as Internet dating profiles. (2) While the study had a large sample size ($N = 2300$ LHAs), the data were only collected from newspapers published in '23 major cities (population size >150 000 people)' (p. 306). As resource pressures (e.g., cost of living) tend to be higher in urban areas, this sampling method could have biased the analysis in favor of finding an effect of local resource pressures on dating preferences. (3) The study only examined the dating preferences of women. Given the theoretical and empirical evidence that both men and women have strategies and preferences that influence their choice of dating and mating partners (e.g., Gangestad & Simpson 2000; Geary et al. 2004; Hill & Reeve 2004), it is of interest to examine the mate choice preferences of both women and men.

Fourth, it is worth noting that we are in the midst of a severe global economic recession. The current resource pressures of severe high unemployment, loss of personal wealth, inflation, increasing income inequality, and the like could influence individuals to seek mates with greater amounts of resources.

To address these issues, we collected a large national sample of dating profiles published on the Internet. These profiles contain specific information on preferences for income from one's mate as well as on one's own personal income. Using these data, we asked three questions about mate selection criteria. First, we ask whether women are more likely than men to seek resources from potential partners, given the fact that there is still a salary gap between men and women (Institute for Women's Policy Research's 2010), and given that women tend to pay more attention to the resource earning capacities of men than men do of women (Geary et al. 2004). Second, we ask whether individuals who live in areas with high costs of living will be more likely to seek resources from their potential mates and whether this behavior is more frequent in women than in men. Finally, because data from studies of human behavior show strong assortative mating tendencies on a variety of factors (Vandenberg 1972; Mare 1991; Weiderman & Allgeier 1992; Waynforth & Dunbar 1995; Geary et al. 2004), we ask whether this pattern is also reflected in individuals seeking a partner with a similar level of personal resources (i.e., income). We address this question by accounting for individuals' own resources when estimating the relationship between local cost of living and resource seeking.

Methods

Data Collection

Over the course of 2009–2010, mate preference data were collected from profiles posted on a popular American Internet dating service. We are obliged to keep the exact source of these data confidential to preserve the privacy of our human subjects. However, we note that this dating service is akin to a traditional newspaper LHA, in that the online daters selected their own dates rather than the online service matching couples together. We also note that dating profiles are not a perfect representation of the human mate choice process. For example, preferences expressed in a dating profile might differ from true preferences (Eastwick & Finkel 2008; Hall et al. 2010; Klofstad et al. 2012; Pawlowski & Dunbar 1999; Todd et al. 2007). This said, the LHA research design is an

effective and frequently used tool for studying human mating preferences (e.g., Weiderman 1993; Greenlees & McGrew 1994; Waynforth & Dunbar 1995; Bercezkei et al. 1997; McGraw 2002). Also, with specific regard to our use of online profiles, as Internet use spreads (80% of Americans have Internet access according to a 2009 study by the Center for the Digital Future), online dating is becoming increasingly prevalent. For example, Madden & Lenhart (2006) find that among American 'Internet users who say they are currently single and looking for romantic partners, 74% say they have used the Internet in one way or another to further their romantic interests' (p. 3).

To select a national sample of dating profiles, we obtained a list of known United States zip codes. We then culled military and foreign (e.g., American Samoa, Guam, and the like) zip codes from this list. The culled list was then sorted randomly. For 313 zip codes, we documented information from the first five profiles of men seeking women and the first five profiles of women seeking men listed within a ten mile radius of each zip code. However, in some selected zip codes such as those in rural areas, there were fewer than five male or female profiles listed. Thus, data were documented from a total of 2944 profiles (1481 men and 1463 women).

Measure of Resource Seeking

To measure resource seeking, we examine the dating profile question that asks daters to check all of the income levels that their ideal date could have. Daters were presented with seven income levels ranging from '<\$25 000' to '\$150 000 or more'. A resource-seeking scale was created by coding each profile based on the lowest income category the dater was willing to accept from his or her date, yielding a seven-point scale running from '<\$25 000' to '\$150 000 or more'. For example, if a profile listed '<\$25 000' as a viable income level for a potential date, the profile was coded 1 regardless if other income categories were also selected by the dater. Conversely, a profile that only listed '\$150 000 or more' was coded 7. Daters were also allowed to give no answer for their ideal date's income if they so desired; 645 profiles listed preferences for income (442 women and 203 men). Daters who did not list an income level for their ideal date were not included in the resource seeking scale.

Measure of Local Resource Pressures

Local resource pressures are measured as the overall cost of living index for each zip code where dating

profiles were collected. These data were available for 2880 of the dating profiles ($N = 64$ missing, comprised of 31 women and 33 men, from seven rural zip codes). This index is scaled based on how expensive it is to live in the zip code compared to the United States national average, which is coded as 100. Consequently, a score above 100 indicates that the zip code is more expensive to live in than the national average, while a score below 100 indicates that cost of living in the zip code is below the national average. These data were obtained from 'Sperling's Best Places', a free Internet real estate service that provides demographic information by zip code (www.bestplaces.net). Sperling compiles their data from a variety of sources, including the United States Bureau of Labor Statistics, the United States Census Bureau, the National Association of Realtors, and the National Association of Home Builders.

Measure of Individual Resources

Individual resources were measured based on the dater's self-reported income in the dating profile. Daters reported their income on a seven-point scale running from '<\$25 000' to '\$150 000 or more'. As with the income of one's ideal date, daters were also allowed to give no report of their own income ($N = 1379$, leaving $N = 1565$ of daters that did report their own income, comprised of 674 women and 891 men). Daters who did not list an income level for their ideal date were not included in the individual resources scale.

Results

Sample Demographics

Table 1 presents descriptive statistics from the sample of dating profiles for our three variables of interest. In line with previous studies, women are more concerned with resource seeking than are men (e.g., Buss & Schmitt 1993; Gangestad & Simpson 2000). There is a statistically significant gap in resource seeking between men and women ($t = 10.34$, $p < 0.01$). Substantively, the women in our sample wanted a date with an income of at least \$50 001–\$75 000 (a \bar{x} score of 3.7 on the seven-point resource seeking scale), while the men desired a date with an income of at least \$35 001–\$50 000 (a \bar{x} score of 2.6 on the seven-point resource seeking scale). Women were more likely to list an income preference for their date than men (women: 30%, men: 14%; $t = -11.04$, $p < 0.01$).

The standard deviation of cost of living illustrates the high level of variation in resource pressures across the United States. For example, the least expensive

Table 1: Sample descriptive statistics

	N	\bar{x}	SD
Resource seeking scale			
All daters	645	3.35	1.36
Women	442	3.70	1.29
Men	203	2.60	1.18
Resource pressures (cost of living)			
All daters	2880	93.93	30.18
Women	1432	94.47	31.05
Men	1448	93.40	29.30
Personal resources (income)			
All daters	1565	3.20	1.53
Women	674	2.72	1.32
Men	891	3.56	1.58

zip code in our sample of dating profiles is located in Flint, Michigan, with a cost of living of 65, 35% less than the national average. The most expensive zip code in our sample is located in Lower Manhattan in New York City, New York, with a cost of living of 270, 170% higher than the national average.

The men in our sample advertised greater personal resources than the women ($t = 11.26$, $p < 0.01$). Substantively, the women in our sample reported earning an income of between \$25 000 and \$50 000 (a \bar{x} score of 2.7 on the seven-point income scale), while the men reported earning between \$35 000 and \$75 000 (a \bar{x} score of 3.6 on the seven-point income scale). Recent estimates from 2005 to 2009 United States Census American Community Survey show that these figures are commensurate with national averages (\bar{x} female income: \$44 000, \bar{x} male income: \$62 000). Men were more likely to list their income in their dating profile than women (men: 60%, women: 46%; $t = 7.74$, $p < 0.01$).

The Influence of Resource Pressures and Personal Resources on Resource Seeking

In Table 2, we examine the relationship between resource seeking and resource pressures. The table presents the results of a linear regression analysis of the relationship between resource pressures, individual resources, and resource seeking among men and women (an ordinal logit analysis produced equivalent results). The regression models employ listwise deletion to address data missing from the data set because of the creation of the income and income seeking scales. More specifically, the analysis in Table 2 includes daters who both requested resources and revealed their own income.

Echoing the results in Table 1, the positive and significant *Sex* coefficient (Column 1 of Table 2)

Table 2: Influence of cost of living and income on resource seeking scale

	Resource seeking scale			
	(1)	(2)	(3)	(4)
Sex (female)	1.11*** (0.10)	1.30*** (0.10)	1.41*** (0.29)	0.94** (0.36)
Resource pressures (cost of living)	0.01*** (0.002)	0.003 (0.002)	0.004 (0.002)	0.003 (0.002)
Personal resources (income)	–	0.40*** (0.04)	0.39*** (0.04)	0.34*** (0.06)
Resource pressures*Sex	–	–	–0.001 (0.003)	–
Personal resources*Sex	–	–	–	0.10 (0.10)
Intercept	1.99*** (0.20)	0.74*** (0.24)	0.67** (0.26)	0.94*** (0.28)
F	66.68***	84.33***	63.25***	64.28***
R ²	0.17	0.32	0.32	0.32
N	636	419	419	419

Cell entries are un-standardized ordinary least squares regression coefficients. Robust standard errors, clustered by zip code to account for the fact that profiles collected from the same zip code will have the same cost of living, are in parentheses. Sample sizes vary because of deletion of cases with missing data (i.e., 'listwise' deletion).

***p < 0.001.

**p < 0.01.

*p < 0.05.

shows that women seek more resources than men. The positive and significant *Resource pressures* coefficient (Column 1) indicates that both men and women seek more resources as resource pressures increase. Importantly, however, once personal resources are added to the analysis (Column 2), we find that the relationship between resource pressure and resource seeking is explained away by personal resources; the *Resource pressures* coefficient is not statistically significant, while the *Personal resources* coefficient is positive and statistically significant. The models presented in Columns 3 and 4 of Table 2 test whether these findings vary across the sexes. They do not. The insignificant *Resource pressures*Sex* coefficient in Column 3 indicates that men and women do not differ in their response to resource pressures. Likewise, the insignificant *Personal resources*Sex* coefficient (Column 4) indicates that the relationship between personal income and income seeking does not vary by sex.

A possible explanation for these results is that cost of living and income are correlated (i.e., multicollinearity), thereby affecting the results of the analysis because of the inflation of standard errors. That is, when one adds an additional variable to a model that is highly correlated with a variable already in the model, a degree of freedom is lost, but without adding any more information to the model. While zip codes tend to be geographically large (i.e., encompassing resource rich and resource poor neighborhoods), it is reasonable to assume that people who reside in zip codes with a high cost of living have more resources. Cost of living and income are indeed correlated among the women ($r = 0.09$, $p < 0.01$) and men ($r = 0.11$, $p < 0.01$) in our sample. However, the

magnitudes of these correlations are not very large. Moreover, a diagnostic analysis (variance inflation factor or 'VIF') of the regression models presented in Table 2 shows no evidence of multicollinearity in the analyses presented in Columns 1 and 2. There is evidence of mild multicollinearity in the models presented in Columns 3 and 4 (i.e., \bar{x} VIF scores of 6.0 and 4.3, respectively). However, this is to be expected, as the constitutive variables of the interaction terms are included in the models, which is necessary to obtain an accurate estimate of interaction effects (e.g., Brambor et al. 2006). Regardless, we note that the critical result in Column 2, which personal resources explain away the influence of resource pressures, still holds in the interaction models (Table 2, Column 3 and 4).

In a related vein, while our data show that daters seek partners with similar income levels, and despite the robust literature on positive assortment on income (Weiderman & Allgeier 1992; Waynforth & Dunbar 1995; Eagly & Wood 1999; Moore et al. 2006), this relationship could be influenced by other mating preferences. For example, those on the dating market might pursue partners with a similar education level, and in doing so assort on income given the relationship between income and education. The original test of the environmental resource pressure hypothesis (McGraw 2002) did not assess the role of education in resource seeking. As our goal was to test this hypothesis in a comparable way, we also did not consider education in our analysis (Table 2). More specifically, rather than adding new independent variables to address the question, our approach was to use up-to-date Internet dating data that contain more precise

measures of personal resources. This all said, the dating profiles we examined contain the education level of the dater and that of his or her ideal date (i.e., 'education seeking'). If we add these two variables to our analysis (results not presented here), we find that the dater's education is unrelated to income seeking, but education seeking is positively related to income seeking. These findings do not vary by the sex of the dater. The positive relationship between personal income and income seeking remains unchanged.

Discussion

Differences in the Mating Strategies of Men and Women

Our results add to the existing evidence that men and women differ in how they seek and choose mating partners, and we show that these strategies are evident in how the sexes solicit mates on the Internet. As summarized in a review by Geary et al. (2004), humans choose mates that maximize the likelihood of successfully procreating and rearing offspring. Consequently, women, who bear more of the costs associated with conceiving and rearing offspring, tend to focus on the resource generating potential of men. In contrast, men tend to be less concerned with resources and tend to be more concerned with the attributes of women that signal fertility, such as body mass, hip-to-waist ratio, and age (e.g., Geary et al. 2004). Our data are in line with these predictions with regard to resource seeking; the women in our study were more likely to seek resources than men. Moreover, our data show that men were more likely to report their incomes than women, consistent with the notion that men will advertise financial success to enhance their appeal to women.

Assortment on Income Explains Resource Seeking Behavior

We also examined whether these patterns of human mate preferences vary because of local resource pressure, defined here as cost of living. While studies of human mate choice have shown that mating preferences are fairly consistent across the globe (e.g., Buss 1989), McGraw (2002) (among others) challenged this idea by pointing to the large literature demonstrating environmental influences on mate preferences in a variety of non-human animals. In line with McGraw (2002), when we examine the relationship between cost of living and resource seeking by daters, we find that individuals who live in expen-

sive areas seek more resources from their mates. However, this approach ignores an important variable in the mate choice equation: one's own resource status. Once we account for this factor, we find no significant relationship between local resource pressure and resource seeking. In fact, the analysis shows that personal income is positively related to resource seeking irrespective of environment. Put another way, our analysis suggests that the universal tendency to mate assortatively on income (Weiderman & Allgeier 1992; Waynforth & Dunbar 1995; Eagly & Wood 1999; Moore et al. 2006) outweighs the effect of local resource pressures when looking for a dating partner.

Different measurement schemes are a likely explanation for the differences between our study and McGraw (2002). The three measures of personal resources examined by McGraw—*per capita* income, female labor force participation, and language about 'resource holding potential' (p. 312) in the brief LHA—are arguably imprecise proxies for how resource rich or poor the individual women in the sample were. Moreover, two of these measures—*per capita* income and female labor force participation—are community-level demographics, not actual content from the LHAs about the women themselves. Consequently, this portion of the analysis is subject to measurement error that could have decreased the likelihood of finding a relationship between personal resources and resource seeking from mates. More specifically, a woman who resides in an area with a high *per capita* income cannot be assumed to be wealthy (especially because the measure of local income level is *per capita* income, not *per capita* female income). Likewise, while a woman might live in a community where there is high female labor force participation, she cannot be assumed to be employed.

To address these issues, we used a more direct measure of resource status: self-reported income. Our ability to more accurately measure personal resources could explain why we find a positive relationship between personal resources and resource seeking, and consequently why we are able to explain away the relationship between local resource pressures and human mate choice.

Study Limitations

While our findings are an important contribution to the study of human mating behavior, as with any scientific study there are limitations to our approach. One is that daters, as in real life, have an incentive to misrepresent themselves in dating profiles (Eastwick & Finkel 2008; Hall et al. 2010; Klostad et al. 2012;

Pawlowski & Dunbar 1999; Todd et al. 2007). For example, most withhold their political ideology to avoid controversy at the outset of the dating process (Klofstad et al. 2012), older women have an incentive to not list their age to appear younger (Pawlowski & Dunbar 1999), and men are more likely to misrepresent personal assets, while women are more likely to misrepresent weight (Hall et al. 2010). In a related vein, other studies of Internet dating estimate preferences by correlating daters' characteristics with those of other daters with whom they make contact (e.g., Hitsch et al. 2010a,b). More specifically, while our data capture 'expressed' preferences (i.e., those that the dater is willing to reveal to others), Hitsch and colleagues' approach captures 'revealed' preferences (i.e., those that the dater expressed through their actions). The revealed approach is computationally more sophisticated than ours; however, it leads to similar conclusions (e.g., women are more concerned with resource provision than are men, and positive assortation is the modal mating behavior). This all said, without knowing the actual (i.e., not estimated) differences between the advertised and the true preferences of daters, it is difficult to speculate how this form of measurement error, if present, would influence our results.

In a related vein, our comparison of the influence of environmental resource pressures and personal resources on income seeking (Table 2) is conditional upon the dater providing responses to the income and income seeking questions in the dating profile. Consequently, this portion of our analysis is not necessarily representative of the entire dating pool we sampled. Nonetheless, this subset of the data shows evidence of external validity. In line with existing studies of human mate choice, the results in Table 2 indicate that women are more concerned with income seeking than are men (e.g., Buss & Schmitt 1993; Gangestad & Simpson 2000). Additionally, it is important to consider that daters who are motivated to both report their own income, and to specify the income they desire in a date, are likely to be 'high demanders'—individuals who place special importance on resources. As such, one might reasonably assume that these types of individuals would be highly sensitive to environmental resource pressures, and yet we find that they are not, once personal resources are accounted for. Put simply, our data are biased to confirm the environmental resource pressure hypothesis (McGraw 2002), and yet they do not.

Another issue to consider is that daters might prioritize the various factors they consider when seek-

ing a mate. For example, Li et al. (2002) show that priorities can shift when those seeking a mate are more/less constrained in their choices (e.g., when choices are less constrained, women focus less on men's ability to provide resources, and more on other factors such as creativity). As such, one might suggest that even if a dater indicates that they are seeking resources from their partner, they might actually give greater weight to other factors such as fidelity or physical attractiveness.

These important caveats acknowledged, we again note our data clearly show that the relationship between income seeking and environmental resource pressures can be explained with personal resources. That is, positive assortation on income (Weiderman & Allgeier 1992; Waynforth & Dunbar 1995; Eagly & Wood 1999; Moore et al. 2006) is a more powerful influence on human mate choice than resource pressures.

Conclusions

In conclusion, we note three avenues for future research suggested by our findings. First, the increased use of Internet dating could influence human mate choice behavior. For example, the ability to easily search and cull through extensive online profiles may allow individuals to mate assortatively with greater ease (see, e.g., Feliciano et al. 2009 on assortment by race). Second, while using LHAs or Internet dating sites are tried and tested methods for studying human mating behavior, such data measure dating preferences, not mate choice *per se*. While preferences are an important component of mate choice behavior, future research should collect data from individuals who have actually mated and produced offspring. Admittedly, it would be difficult to trace a couple as they progress from dating to mating. Nonetheless, this would be the ideal research design if one is concerned with mate choice (e.g., Klofstad et al. 2012). Finally, while our data do not support the hypothesis that resource seeking from mates varies because of local resource pressures, many questions remain about whether, how, and why human mate choice behavior is influenced by environmental factors. In light of the current global recession, for example, an important future direction is to test whether those seeking mates prioritize resources over other factors during tough economic times (e.g., Li et al. 2002).

Acknowledgements

The authors would like to thank Duke University and the University of Miami for financial and administrative

support. We also thank the anonymous reviewers for their helpful comments.

Literature Cited

- Andersson, M. B. 1994: Sexual Selection. Princeton Univ. Press, Princeton, NJ.
- Bereczkei, T., Voros, S., Gal, A. & Bernath, L. 1997: Resources, attractiveness, family commitment; reproductive decisions in human mate choice. *Ethology* **103**, 681–699.
- Brambor, T., Clark, W. R. & Golder, M. 2006: Understanding interaction models: improving empirical analyses. *Polit. Anal.* **14**, 63–82.
- Buss, D. M. 1989: Sex differences in human mate preferences: evolutionary hypotheses tested in 37 cultures. *Behav. Brain Sci.* **12**, 1–49.
- Buss, D. M. & Schmitt, D. P. 1993: Sexual strategies theory: an evolutionary perspective on human mating. *Psychol. Rev.* **100**, 204–232.
- Center for the Digital Future. 2009: The 2009 Digital Future Report: Surveying the Digital Future—Year Eight. Los Angeles, CA, Center for the Digital Future. Report available at <http://www.digitalcenter.org>.
- Clutton-Brock, T. H., Rose, K. E. & Guinness, F. E. 1997: Density-related changes in sexual selection in red deer. *Proc. R. Soc. Lond. B Biol. Sci.* **264**, 1509–1516.
- Darwin, C. 1871: The descent of Man, and Selection in Relation to Sex. John Murray, London.
- DeBruine, L. M., Jones, B. C., Crawford, J. R., Welling, L. L. M. & Little, A. C. 2010: The health of a nation predicts their mate preferences: cross-cultural variation in women's preferences for masculinized male faces. *Proc. R. Soc. Lond. B Biol. Sci.* **277**, 2405–2410.
- Eagly, A. H. & Wood, W. 1999: The origins of sex differences in human behavior: evolved dispositions versus social roles. *Am. Psychol.* **54**, 408–423.
- Eastwick, P. W. & Finkel, E. J. 2008: Sex differences in mate preferences revisited: do people know what they initially desire in a romantic partner? *J. Pers. Soc. Psychol.* **94**, 245–264.
- Endler, J. A. & Houde, A. E. 1995: Geographic variation in female preferences for male traits in *Poecilia reticulata*. *Evolution* **49**, 456–468.
- Feliciano, C., Robnetta, B. & Komaiea, G. 2009: Gendered racial exclusion among white Internet daters. *Soc. Sci. Res.* **38**, 39–54.
- Gangestad, S. W. & Buss, D. M. 1993: Pathogen prevalence and human mate preferences. *Ethol. Sociobiol.* **14**, 89–96.
- Gangestad, S. W. & Simpson, J. A. 2000: The evolution of human mating: trade-offs and strategic pluralism. *Behav. Brain Sci.* **23**, 573–587.
- Geary, D. C., Vigil, J. & Byrd-Craven, J. 2004: Evolution of human mate choice. *J. Sex Res.* **41**, 27–42.
- Godin, J.-G. J. & Briggs, S. E. 1996: Female mate choice under predation risk in the guppy. *Anim. Behav.* **51**, 117–130.
- Greenlees, I. A. & McGrew, W. C. 1994: Sex and age differences in preferences and tactics of mate attraction: analysis of published advertisements. *Ethol. Sociobiol.* **15**, 59–72.
- Hall, J. A., Park, N., Song, H. & Cody, M. J. 2010: Strategic misrepresentation in online dating: the effects of gender, self-monitoring, and personality traits. *J. Soc. Pers. Relat.* **27**, 117–135.
- Hebets, E. A., Wesson, J. & Shamble, P. S. 2008: Diet influences mate choice selectivity in adult female wolf spiders. *Anim. Behav.* **76**, 355–363.
- Hill, S. E. & Reeve, H. K. 2004: Mating games: the evolution of human mating transactions. *Behav. Ecol.* **15**, 748–756.
- Hingle, A., Fowler, K. & Pomiankowski, A. 2001: The effect of transient food tress on female mate preference in the stalk-eyed fly *Cyrtodiopsis dalmanni*. *P. Roy. Soc. B-Biol. Sci.* **268**, 1239–1244.
- Hitsch, G. J., Hortaçsu, A. & Ariely, D. 2010a: What makes you click?—mate preferences in online dating. *Quant. Mark. Econ.* **8**, 393–427.
- Hitsch, G. J., Hortaçsu, A. & Ariely, D. 2010b: Matching and sorting in online dating. *Am. Econ. Rev.* **100**, 130–163.
- Houde, A. E. & Endler, J. A. 1990: Correlated evolution of female mating preferences and male colour patterns in the guppy *Poecilia reticulata*. *Science* **248**, 1405–1408.
- Hunt, J., Brooks, R. & Jennions, M. D. 2005: Female mate choice as a condition-dependent life-history trait. *Am. Nat.* **166**, 79–92.
- Institute for Women's Policy Research. 2010: The gender wage gap: 2009. Report available at <http://www.iwpr.org/pdf/C350.pdf>
- Jennions, M. D. & Petrie, M. 1997: Variation in mate choice and mating preferences: a review of causes and consequences. *Biol. Rev.* **72**, 283–327.
- Klofstad, C. A., McDermott, R. & Hatemi, P. K. 2012: Do bedroom eyes wear political glasses? The role of politics in human mate attraction. *Evol. Hum. Behav.* **33**, 100–108.
- Li, N. P., Bailey, J. M., Kenrick, D. T. & Linsenmeier, J. A. W. 2002: The necessities and luxuries of mate preferences: testing the tradeoffs. *J. Pers. Soc. Psychol.* **82**, 947–955.
- Low, B. S. 2007: Ecological and socio-cultural impacts on mating and marriage systems. In: *The Oxford Handbook of Evolutionary Psychology* (Dunbar, R. I. M. & Barrett, L., eds). Oxford Univ. Press, Oxford, pp. 449–462.

- Madden, M. & Lenhart, A. 2006: Online dating. pew internet and American life project. Report available at <http://www.pewinternet.org>
- Mare, R. D. 1991: Five decades of educational assortative mating. *Am. Sociol. Rev.* **56**, 15—32.
- McGraw, K. J. 2002: Environmental predictors of geographic variation in human mating practices. *Ethology* **108**, 303—317.
- Moore, F. R. & Cassidy, C. 2007: Female status predicts female mate preferences across non- industrial societies. *Cross-Cult. Res.* **41**, 66—74.
- Moore, F. R., Cassidy, C., Smith, M. J. L. & Perrett, D. I. 2006: The effects of female control of resources on sex-differentiated mate preferences. *Evol. Hum. Behav.* **27**, 193—205.
- Pawlowski, B. & Dunbar, R. I. M. 1999: Withholding age as putative deception in mate search tactics. *Evol. Hum. Behav.* **20**, 73553—73569.
- Qvarnstrom, A. & Forsgren, E. 1998: Should females prefer dominant males? *Trends Ecol. Evol.* **13**, 498—501.
- Sear, R. & Marlowe, F. W. 2009: How universal are human mate choices? Size does not matter when Hadza foragers are choosing a mate *Biol. Letters.* **5**, 606—609.
- Todd, P. M., Penke, L., Fasolo, B. & Lenton, A. P. 2007: Different cognitive processes underlie human mate choices and mate preferences. *Proc. Natl. Acad. Sci. U.S.A.* **104**, 15011—15016.
- Trivers, R. L. 1972: Parental investment and sexual selection. In: *Sexual Selection and the Descent of Man, 1871—1971* (Campbell, B., ed). Aldine, Chicago, IL, pp. 136—179.
- Vandenberg, S. G. 1972: Assortative mating, or who marries whom? *Behav. Genet.* **2**, 127—157.
- Waynforth, D. & Dunbar, R. I. M. 1995: Conditional mate choice strategies in humans: evidence from “lonely hearts” advertisements. *Behaviour* **132**, 755—779.
- Weiderman, M. W. 1993: Evolved gender differences in mate preferences: evidence from personal advertisements. *Ethol. Sociobiol.* **14**, 331—352.
- Weiderman, M. W. & Allgeier, E. R. 1992: Gender differences in mate selection criteria: sociobiological or socioeconomic explanation? *Ethol. Sociobiol.* **13**, 115—124.
- Widemo, F. & Saether, S. A. 1999: Beauty is in the eye of the beholder: causes and consequences of variation in mating preferences. *Trends Ecol. Evol.* **14**, 26—31.