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Individual differences in talking enjoyment: The roles of life history strategy and mate value

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Abstract: The present research explored the possibility that individual differences in talking enjoyment may play a role in human reproduction, such as mate advertising in humans. Prior research on talking has tended to focus on sex differences in the amount of talking. We present a new self-report measure to assess individual differences in talking enjoyment and explore its relationships with self-perceived mate value and life history strategy. In Study 1, we assessed talking enjoyment with an 11-item talking enjoyment questionnaire and found that (a) women's average talking enjoyment and Mini-K ratings were significantly higher than men's; (b) talking enjoyment was predicted by life history strategy as measured by and self-rated mate value; and (c) the relationship between sex and talking enjoyment was mediated by life history strategy. In Study 2, we replicated the results of Study 1 with a revised eight-item talking enjoyment questionnaire after confirming its test-retest reliability. The results provide new insights into individual differences in talking enjoyment. Directions for future research on the relationship talking behavior and mate selection in humans are discussed.

ABOUT THE AUTHORS

Shelia M. Kennison received her PhD in Cognitive Psychology from the University of Massachusetts, Amherst. In addition to numerous research reports, she is the author of the textbook *Introduction to Language Development* published by Sage in 2013 and the forthcoming *Psychology of Language* to be published by Palgrave in 2017.

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PUBLIC INTEREST STATEMENT

The research explored whether individual differences in talking enjoyment are related to processes involved in human reproduction. Prior research on individual differences in talking has focused on sex differences, with studies yielding conflicting results. We developed a new questionnaire designed to measure individual differences in talking enjoyment. In two studies, we tested the hypotheses that (a) those who enjoy talking perceive themselves as good mates and (b) follow a reproductive strategy in which reproduction is delayed and resources and effort are invested into social mobility (also called slow life history strategy). In Study 1, we assessed talking enjoyment with an 11-item questionnaire. In Study 2, we assessed talking enjoyment with a revised eight-item questionnaire. The results of both studies confirmed the hypotheses. Further, the results showed that the difference in women's and men's talking enjoyment was mediated by life history strategy, as, on average, men tend to follow a faster reproductive strategy than women and also tend to enjoy talking less than women.

Subjects: Social Sciences; Anthropology - Soc Sci; Gender Studies - Soc; Psychological Science

Keywords: talking; life history strategy; mate value; sex differences

1. Introduction

Talking is an important human behavior whose significance within theories of evolutionary psychology is not fully understood. Prior research on talking behavior has tended to focus on investigating the popular stereotype that women generally talk more than men (Cutler & Scott, 1990; Mehl, Pennebaker, Crow, Dabbs, & Price, 2001; Onnela, Waber, Pentland, Schnorf, & Lazer, 2014). Some studies have found no evidence for sex differences in talking (Cutler & Scott, 1990; Mehl et al., 2001). Mehl et al. (2001) used recording devices worn by participants over several days to collect over 40,000 samples of speech. The number of words produced by men and women did not differ on average. In a smaller scale study, Onnela et al. (2014) found that in collaborative work settings, women talk more than men, but men talk more than women in non-collaborative settings. A number of scholars have suggested that talking behavior may be a form of sexual signaling (see Gersick & Kurzban, 2014; Miller, 1997, 1998, 1999; Redhead & Dunbar, 2013). In the present research, we investigated this possibility with a new questionnaire designed to assess individual differences in talking enjoyment.

In research with non-human species, vocalizations have long been linked to reproductive behaviors (see Bradbury & Vehrencamp, 2011 for review). In many species, unique vocalizations are made to attract mating partners (i.e. mating calls). Mating calls are have been studied in a wide range of species, including birds (Johnsen, Espmark, Pedersen, & Steen, 1991), frogs (Kelley, 2004), bats (Georgiakakis & Russo, 2012), elephants (Soltis, 2010), koalas (Charlton, Ellis, Brumm, Nilsson, & Fitch, 2012), and red deer (Reby, Charlton, Locatelli, & McComb, 2010). Research has also shown that vocalizations generally increase during breeding seasons (Ellis et al., 2011; Pitcher, Briefer, Vannoni, & McElligott, 2014; Rendon, Keesom, Amadi, Hurley, & Demas, 2015). It also appears that vocalizations contain information about the reproductive fitness of the individual producing the call (Wyman et al., 2012).

With regard to human communication, there is disagreement about the extent to which communication in humans and other species would be expected to be similar. Chomsky (1966) and more recently Bolhuis, Tattersall, Chomsky, and Berwick (2014) argued against the view that human communication came about through natural selection (See also Ferretti & Adornetti, 2014; Hauser et al., 2014); thus, similarities in the form and function would not be expected for communication by humans and by other species. In contrast, other researchers have viewed both human and non-human communication as arising due to natural selection, suggesting that verbal interactions with humans provides information relevant to reproductive signaling has been proposed in prior research (Gersick & Kurzban, 2014; Miller, 1997, 1998, 1999; Redhead & Dunbar, 2013). Gersick and Kurzban (2014) suggested that flirting among humans can be viewed as a form of reproductive signaling, which occurs covertly to avoid the social risk that may arise if such signals were detected by reproductive rivals or current mates. Other research has shown that some information available during talking episodes, specifically characteristics of the voice, has been shown to be used in mate selection with females preferring males with lower pitched voices and males preferring females with higher pitched voices (Wells, Dunn, Sergeant, & Davies, 2009). In men's voices, pitch has been shown to be positively related to testosterone levels measured in saliva (Dabbs & Mallinger, 1999; Evans, Neave, Wakelin, & Hamilton, 2008; Hodges-Simeon, Gurven, & Gaulin, 2015; Puts, Apicella, & Cardenas, 2012). Voice pitch is one of multiple cues that women and men may use to judge others' reproductive potential. In a study with indigenous African women, Atkinson et al. (2012) showed that voice pitch and handgrip strength was related to a measure of reproductive success that took into account the number of children, grandchildren, and child mortality. Women with higher pitched voices and stronger handgrip strength had greater reproductive success.

In assessments of personality and temperament, talkativeness is included as an aspect of extraversion (Ashton & Lee, 2009; Cheek & Buss, 1981; Evans et al., 2008; Evans & Rothbart, 2009; Eysenck & Eysenck, 1975; Eysenck, Eysenck, & Barrett, 1985; Goldberg, 1992; Lee & Ashton, 2004, 2008; McCrae & Costa, 2008; Saucier, 1994; Saucier & Ostendorf, 1999). Across these measures, the subcomponents of extraversion vary. For example, in Saucier and Ostendorf's (1999) examination of big five factors, extraversion includes unrestraint, activity, assertiveness, and sociability. In contrast, in Evans et al. (2008) and Evans and Rothbart's (2009) work on adult temperament, extraversion/surgency is conceptualized as involving high intensity pleasure, positive affect, and sociability. Ashton and Lee's (2009) extraversion factors include sociability, liveliness, social self-esteem, and social boldness. In recent preliminary research, talking enjoyment and the big five extraversion factor were highly correlated (i.e. $r = 0.76$ for men and $r = 0.80$ for women, Kennison & Gonzalez, 2015). Other research has shown that extraversion is related to physical strength (Lukaszewski & Roney, 2011; Lukaszewski & von Rueden, 2015; see also Haysom et al., 2015) and number of sexual partners (Heaven, Fitzpatrick, Craig, Kelly, & Sebar, 2000; Heaven et al., 2003; Nettle, 2005, 2006). It remains unclear how individual differences in talking behavior are related to the various facets of extraversion.

The view that there is a role for talking in human reproduction is also supported by intriguing research by Rosenberg and Tunney (2008). They examined the use of low frequency words by participants in which men and women were randomly assigned to select a photograph of a young or an old potential mate and to describe an imagined romantic encounter with the person in the photograph. They reasoned that use of low frequency words may be interpreted by others as indicating higher intelligence and function as an indicator of fitness. The results showed that men's descriptions contained significantly more low frequency words when the imagined romantic encounter was with a young prospective mate than an old one. Women's descriptions contained more low frequency words when the imagined romantic encounter was with an old vs. young prospective mate; however, the difference was not significant. As there was no assessment of participant intelligence in the study, it is possible that other factors may have contributed to the results, such as differences in the word frequency patterns for concepts related to older women vs. older men.

The purpose of the present research was to determine whether individual differences in talking enjoyment may be understood in terms of individual differences in reproduction-related signaling. We present a new measure for assessing talking enjoyment, which we referred to as the talking enjoyment questionnaire (TEQ). In the construction of the items, we took an approach similar to the need for cognition scale (Cacioppo & Petty, 1982), which aimed to capture individual differences in how often individuals engage in thinking as a pleasurable activity. We reasoned that individuals with higher scores on the TEQ generally enjoy the activity of talking more than those with lower scores. Further, we hypothesized that individuals who enjoy talking more would view themselves as better mates. Prior research has suggested that individuals' mate value can be conceived of as multi-faceted, involving qualities or observable traits that impact an individual's ability to successfully find, attract, and retain a mate, at any point in time and within a given context (Fisher, Cox, Bennett, & Gavric, 2008; see also Starratt, Weekes-Shackelford, & Shackelford, 2017). Several researchers have asserted, however, that mate value is multi-faceted and includes physical characteristics, personality, kindness, intelligence, and emotional stability (Brase & Guy, 2004; Buss, 1989), factors that show few sex differences. Self-perceived mate value rests on the assumption that observable qualities that make one an attractive mate are internalized, most likely outside of conscious awareness (Kenrick, Groth, Trost & Sadalla, 1993; Kirsner, Figueredo, & Jacobs, 2003).

We also explored the possibility that individual differences in talking behavior would be related to individuals' life history strategy, which has been used to describe differences in individuals' reproductive behaviors. Life history strategy is a core concept within life history theory (MacArthur & Wilson, 1967) in which different species or different individuals within species can be described as having a fast life history (i.e. *r* type), having shorter lives, shorter periods of development, higher numbers of offspring with higher mortality rates, and usually devoting time and resources into

current vs. future reproductive activities or a slow life history (i.e. *K* type), having longer lives, longer periods of development, seeking long-term vs. short-term mates, and producing fewer, but potentially more robust offspring. Descriptions of the life history strategy in humans have noted that individuals vary in terms of environmental stability and resources (Chisholm, 1993; Roff, 2002; Trivers, 1972), resulting in some individuals having a faster life history (i.e. less stability and fewer resources) and others having a slower life history (i.e. more stability and more resources). Figueredo, Vásquez, Brumbach, and Schneider (2004) suggest that people with a slower life history strategy delay mating and invest effort, time, and resources into social mobility, which improves the odds of long-term survival for both the individual and their future children. We reasoned that individuals with longer life history strategies may enjoy talking more because talking may promote the formation of social bonds both in and outside of the family (Bluck & Alea, 2009).

Prior research supports the view that there is a female bias toward parenting effort and a male bias toward mating effort (Glutton-Brock & Vincent, 1991; Trivers, 1972). Human mating patterns are consistent with this (Borgerhoff Mulder, 2000; Buss, 1989; Symons, 1979). Sex differences in life history strategy yield sex differences in mate preferences, with men often placing more emphasis on physical attractiveness as it relates to fertility, and women placing more emphasis on status and resources, as they relate to the ability to provision for her and her offspring (Buss & Schmitt, 1993), though there are individual differences in these general patterns (Byrd-Craven, Geary, Vigil, & Hoard, 2007; Gangestad & Simpson, 2000; Geary, 2000). Humans, however, may exhibit exceptions to the norm when men invest heavily in parenting (Geary, 2000) and when women invest more heavily in mating, including multiple mating relationships and extramarital relationships (Bellis & Baker, 1990; Gangestad & Buss, 1993). In fact, mating strategies may be better conceptualized as multidimensional, meaning that one can pursue both short-term and long-term mating strategies simultaneously, depending on social and environmental constraints (Jackson & Kirkpatrick, 2007). These individual differences are predictably associated with individual differences in developmental history and stability, reproductive timing, and perceived mate value (Byrd-Craven et al., 2007).

Other research has found that there is a relationship between life history strategy and self-perceived mate value (Dillon, Adair, Wang, & Johnson, 2013). Dillon et al. (2013) recruited heterosexual, monogamous couples and assessed their life history strategies. Each individual in the couple provided ratings of their own and their partner's mate value using both the mate value inventory (Fisher et al., 2008) and a task that involving rating physical attractiveness. The results showed that individuals with slower life history strategy rated themselves and their partners higher in mate value than others. Attractiveness ratings were also higher for individuals with a slower life history strategy.

In the present paper, we report two studies in which we tested two hypotheses: (a) individual differences in talking enjoyment are positively related to self-perceived mate value and (b) higher levels of talking enjoyment would be related to slower rather than faster life history strategies. In both studies, we assessed talking enjoyment using a new questionnaire. In Study 1, participants reported their talking enjoyment with the 11-item TEQ, their mate value, and life history strategy. In Study 2, we aimed to replicate the results of Study 1 using a revised eight-item version of the TEQ and confirm its test-retest reliability and aimed to replicate the results of Study 1 with regard to the relationship among TEQ, mate value, and life history.

2. Study 1

2.1. Method

2.1.1. Participants

There were 497 participants (247 women, 250 men) enrolled in psychology courses and speech communication courses at a large public university that were part of the Department of Psychology SONA system. Participants received course credit for their participation. The sample was composed

of the following ethnicities: 77.4% White, not of Hispanic origin; 3% was Hispanic, 5.6% was Native American; 4.2% was African-American; 3.4% was more than one group, 2.8% was Asian American and 3.6% selected the other category.

2.1.2. Materials

We assessed life history strategy using the Mini-K (Figueredo et al., 2006), mate value using Fisher et al.'s (2008) mate value inventory, and talking enjoyment using an 11-item questionnaire developed for the present research.

The mate value inventory was developed as a self-reported measure of the participant's own mate value (Fisher et al., 2008). The mate value inventory had good internal reliability ($\alpha = 0.83$, Fisher et al., 2008). Each question was paired with a seven-point scale (1 = Strongly Disagree, 7 = Strongly Agree). One item was reverse scored (i.e. item 11). Participants were scored directionally across the 22-items to indicate either a high or low mate value. In the present research, we found that the mate value inventory had good internal reliability ($\alpha = 0.87$).

The Mini-K is a 20-item questionnaire, which was developed as a self-report measure of human life history strategy (Figueredo et al., 2006). The Mini-K has been shown to have good internal reliability ($\alpha = 0.70$, Figueredo et al., 2006). Each question is used with a seven-point scale (−3 = Disagree Strongly, 0 = Don't Know/Not Applicable, +3 = Agree Strongly). Participants' responses are summed with higher scores reflecting slower life history strategy and lower scores reflecting faster life history strategy. In the present study, we observed good internal reliability for the Mini-K ($\alpha = 0.86$).

We developed the TEQ to assess individual differences in talking enjoyment. During the construction of the items, we modeled questions on the need for cognition scale (Cacioppo & Petty, 1982), which aimed to capture individual differences in how often individuals engage in thinking as a pleasurable activity. Pilot testing on the items was conducted to increase the likelihood that the questionnaire would yield acceptably high levels of internal consistency. The appendix A displays this 11-item questionnaire that we used to assess talking enjoyment. Each question in the survey was paired with a seven-point Likert-scale. (1 = Strongly Disagree, 7 = Strongly Agree). Four items were reverse scored (i.e. 1, 2, 5, and 7). After reverse scoring, participants' scores for the 11 items were averaged. Higher average scores on the questionnaire reflected higher talking enjoyment. The internal consistency for the questionnaire was relatively high as indicated by the observed reliability (Cronbach $\alpha = 0.88$). We also assessed the test-retest reliability of the TEQ using an additional group of 59 participants and found that TEQ was consistent over time, $r(57) = 0.77$, $p < 0.001$.

2.1.3. Procedure

Approval for the research was obtained from the Oklahoma State University IRB prior to recruitment. All participants completed the study online. The survey was setup using a professional license of Surveymonkey.com. Participants provided informed consent and completed the questionnaires in the same order (i.e. talking enjoyment questionnaire, mate value questionnaire, the Mini-K, and demographics).

3. Results

We calculated the descriptive statistics for the three variables: life history (i.e. Mini-K ratings), mate value, and talking enjoyment. Table 1 displays these by sex. Women had higher scores for talking enjoyment and life history strategy than men, $t(466) = 2.38$, $p = 0.02$, and $t(456) = 5.38$, $p < 0.001$, respectively. Mate value did not differ significantly between men and women.

Using Pearson's product-moment correlation, we assessed the interrelatedness of the talking enjoyment, mate value, and life history strategy. Talking enjoyment was significantly correlated with the Mini-K for men, $r = 0.32$, $p < 0.001$, and women, $r = 0.36$, $p < 0.001$, and overall, $r = 0.36$, $p < 0.001$, and with mate value for men, $r = 0.34$, $p < 0.001$, and women, $r = 0.32$, $p < 0.001$, and overall, $r = 0.33$,

Table 1. Descriptive statistics for the talking enjoyment scale, mate value, and Mini-K by sex

	Men					Women					*t*-value	Cohen's d
Variable	***N***	**Mean**	***SD***	**Skewness**	**Kurtosis**	***N***	**Mean**	***SD***	**Skewness**	**Kurtosis**		
TES	241	4.52	1.01	0.19	−0.60	227	4.75	1.08	−0.07	−0.13	−2.38*	−0.22
Mini-K	231	0.99	0.79	−0.28	−0.77	227	1.38	0.79	−0.50	0.58	5.30***	−0.49
Mate Value	234	4.41	0.84	−0.03	0.48	225	4.38	0.87	−0.35	1.19	−0.30	0.04

*$p < 0.05$.
***$p < 0.001$.

$p < 0.001$. Mate value and life history strategy were also significantly correlated for men, $r = 0.31$, $p < 0.001$, for women $r = 0.22$, $p < 0.001$, and overall, $r = 0.26$, $p < 0.001$.

In addition, we examined each triad of variables to determine whether they satisfied conditions deemed necessary for mediation analysis (Baron & Kenny, 1986; Hayes, 2013, 2015). Only one triad of variables satisfied the conditions: participant sex, life history, and talking enjoyment. The results indicated that participant sex significantly predicted life history strategy, $\beta = -0.24$, $SE = 0.07$, $p < 0.001$, and that life history strategy significantly predicted talking enjoyment, $\beta = 0.35$, $SE = 0.06$, $p < 0.001$. After controlling for life history strategy, participant sex was no longer a significant predictor of talking enjoyment, $\beta = -0.08$, $SE = 0.10$, $p = 0.44$, indicating full mediation. Overall, the predictors accounted for approximately 18% of the variance in talking enjoyment. With the Process macro for SPSS (Hayes, 2013), we tested the significance of the indirect effect using bootstrapping procedures using 10,000 bootstrapped samples. The indirect effect was significant with a bootstrapped unstandardized indirect effect of −0.17 ($SE = 0.04$) and a 95% confidence interval ranging from −0.27 to −0.10. The completely standardized indirect effect was −0.08 ($SE = 0.02$) and a 95% confidence interval ranging from −0.12 to −0.05. The direct effect of −0.08 ($SE = 0.10$) was also significant, with a 95% confidence interval ranging from −0.27 to 0.11.

4. Discussion

The results supported both hypotheses, as individual differences in talking enjoyment were positively related to mate value and slower rather than faster life history strategies. Further, the results showed that the relationship between participant sex and talking enjoyment was mediated by life history strategy. The purpose of Study 2 was to determine whether these results could be replicated using a revised eight-item version of the TEQ.

5. Study 2

5.1. Method

5.1.1. Participants

There were 320 participants (181 women, 129 men) who participated in the study and recruited in the same manner as in Study 1.

5.1.2. Materials

We assessed life history and mate value as we did in Study 1. We observed similar internal consistencies as in Study 1. The internal consistencies of the Mini-K and mate value were good, as indicated by Cronbach alphas $\alpha = 0.80$ and $\alpha = 0.88$, respectively. We assessed talking enjoyment using a revised version of the TEQ composed of eight items, which were more narrowly focused on enjoyment of talking. Only one of the items from Study 1 was used in its original form. Seven new items were created to more concisely focus on enjoying or not enjoying talking. The revised scale is displayed in Appendix B. The internal consistency for the questionnaire was relatively high as indicated by the observed reliability (Cronbach $\alpha = 0.92$). We also assessed the test-retest reliability of the TEQ was assessed using an additional group of 59 participants and found that TEQ was consistent over time, $r = 0.77$, $p < 0.001$.

5.1.3. Procedure

As with Study 1, we sought and obtained approval for the research from the Oklahoma State University IRB before recruiting via the Department of Psychology SONA system. Study 2 was implemented in a manner that was the same as Study 1. In Study 2, participants completed questionnaires in the following order (i.e. talking enjoyment questionnaire, mate value questionnaire, the Mini-K, and demographics).

6. Results and discussion

We calculated the descriptive variables. These are displayed in Table 2 by sex. As in Study 1, scores on talking enjoyment and the life history strategy were significantly higher for women than men, $t(299) = 2.96$, $p = 0.003$ and $t(291) = 4.79$, $p < 0.001$, respectively, and men's and women's average mate value did not differ significantly. A series of Pearson's product-moment correlations were carried out to examine the interrelationships among talking enjoyment, mate value, and the life history strategy. As in Study 1, talking enjoyment, mate value, and life history strategy were positively related. Talking enjoyment was significantly correlated with life history strategy for men, $r = 0.24$, $p = 0.01$, and women, $r = 0.27$, $p < 0.001$, and overall, $r = 0.29$, $p < 0.001$, and with mate value for men, $r = 0.48$, $p < 0.001$, and women, $r = 0.48$, $p < 0.001$, and overall, $r = 0.43$, $p < 0.001$. Mate value and life history strategy were also significantly correlated for men, $r = 0.40$, $p < 0.001$, for women $r = 0.35$, $p < 0.001$, and overall, $r = 0.35$, $p < 0.001$.

As in Study 1, we examined each triad of variables to determine whether they satisfied conditions deemed necessary for mediation analysis (Baron & Kenny, 1986; Hayes, 2013, 2015). The results indicated that participant sex significantly predicted life history strategy, $\beta = -0.27$, $SE = 0.08$, $p < 0.001$, and that life history strategy significantly predicted talking enjoyment, $\beta = 0.29$, $SE = 0.11$, $p < 0.001$. After controlling for life history strategy, participant sex was no longer a significant predictor of talking enjoyment, $\beta = -0.24$, $SE = 0.16$, $p = 0.13$, indicating full mediation. Overall, the predictors accounted for approximately 9% of the variance in talking enjoyment. With the Process macro for SPSS (Hayes, 2013), we tested the significance of the indirect effect using bootstrapping procedures using 10,000 bootstrapped sample. The indirect effect was significant with a bootstrapped unstandardized indirect effect of −0.19 ($SE = 0.07$) and a 95% confidence interval ranging from −0.08 to −0.35. The completely standardized indirect effect was −0.07 (SE = 0.02) and a 95% confidence interval ranging from −0.13 to −0.03. The direct effect of −0.24 (SE = 0.16) was also significant, with a 95% confidence interval ranging from −0.55 to 0.07.

6.1. General discussion

The present research tested the hypothesis that talking plays a role in reproduction-related processing, such as mate advertising. Using a new TEQ developed for this research, we found that individuals who enjoy talking more perceive themselves as better mates than those who enjoy talking less. In addition, we found that those with higher levels of talking enjoyment had a slower life history strategy. In Study 1, we reported results with an 11-item version of the TEQ, which demonstrated relatively high internal consistency. In Study 2, we reported a replication with additional participants and a revised eight-item version of the TEQ with both adequate internal consistence as well as test-retest reliability. On average, the women in our samples reported higher levels of talking enjoyment than men and also report a slower life history strategy. Further, the results showed that the relationship between participant sex and talking enjoyment was mediated by life history strategy. This result

Table 2. Descriptive statistics for talking enjoyment, Mini-K, and mate value by sex

	Men					Women					*t*-value	Cohen's d
Variable	***N***	**Mean**	***SD***	**Skewness**	**Kurtosis**	***N***	**Mean**	***SD***	**Skewness**	**Kurtosis**		
TES	123	4.61	1.29	−0.30	−0.16	178	5.05	1.27	−0.54	−0.31	−2.96**	−0.34
Mini-K	124	1.10	0.73	−0.73	1.25	176	1.48	0.62	−0.80	0.77	4.79***	−0.56
Mate Value	117	4.60	0.91	−0.09	−0.29	165	4.38	0.93	−0.68	0.69	−0.77	0.10

**$p < 0.01$.

***$p < 0.001$.

sheds light on prior conflicting studies regarding sex differences in talking behavior (Cutler & Scott, 1990; Mehl et al., 2001; Onnela et al., 2014), as talking behavior was compared for men and women without taking into account the role of life history strategy.

Our results from both studies are consistent with Figueredo et al.'s (2004) proposal that those with a slower life history strategy invest in activities related to social mobility, which would typically involve talking as a means of forming new social relationships. Talking to others is likely to be an important way for individuals not only to meet a greater number of potential mates, but also be a way to gain social status. Taken together the two findings support suggestions from prior research that language may be used in mate advertising (Gersick & Kurzban, 2014; Miller, 1997, 1998, 1999; Redhead & Dunbar, 2013). The results are also compatible with Rosenberg and Tunney (2008)'s view that what people say, specifically the choice of vocabulary, may reflect the intelligence of the speaker and function as a fitness cue, which can be used for mate selection.

We do not believe that the present results should be interpreted as indicating that people are always consciously aware that their talking behavior functions to advertise their value as a prospective mate. In some cases, individuals may purposely engage in overt demonstrations of mate advertising (i.e. flirting); however, it may be the case that the general tendency to be talkative serves the individuals' reproductive activities without awareness on the part of the individual.

The limitations of the research include the fact that the sample was drawn from undergraduates who may differ in important ways from individuals who do not pursue higher education. Individuals pursuing higher education are likely to have slower life history strategies than those who do not (Dillon, Adair, Wang & Johnson, 2013). The sample was also predominantly White. It remains to be determined whether individual differences in talking enjoyment are related to level of education or vary across ethnic group. Although we expect that the relationships between mate value and talking enjoyment and life history strategy and talking enjoyment to be observed in samples from other demographic populations, future research is needed. Lastly, our measure of life history strategy was the relatively brief Mini-K (Figueredo et al., 2006). Future research is needed to confirm that longer, more thorough measures life history strategy in humans yield results similar to those observed in the present study.

Future research investigating the relationship between talking enjoyment and how much is said as well as what is said (e.g. vocabulary) across contexts (e.g. talking with prospective mates vs. talking with friends, colleagues, and family) would be helpful in further understanding sex differences in talking behavior. In addition, it would also be valuable to determine to what extent individuals take into account a prospective mate's talkativeness. Given prior research showing that men predominantly select mates on the basis of physical attractiveness and women select mates on the basis of status and resources (Buss & Schmitt, 1993), we find it plausible that women may value talkativeness in potential mates more than men. On one hand, it is possible that women may value talkativeness as more important in evaluating long-term vs. short-term mating prospects, because it would only be long-term mating in which there would be ample opportunities for substantial talking to occur. On the other hand, because talkativeness may be strongly related to extraversion, physical strength, and possibly social status, women's mate selection generally may show a preference for talkative mates because it is a characteristic correlated with overall fitness. With regard to evolutionary models of extraversion, it would also be valuable to know whether talking enjoyment is related to all, or only some of the other facets of extraversion and whether it is related to the variables most commonly relied upon to assess individuals' reproductive fitness.

In sum, the research showed that for men and women, the extent to which individuals report enjoying talking was predicted by mate value and life history strategy. Those who viewed themselves as higher quality mates and reported having a slower vs. faster life history strategy enjoyed talking more than others. Furthermore, the relationship between participant sex and talking enjoyment was mediated by life history strategy. We hope the research serves as an impetus for future studies exploring the role of talking in human reproductive processes.

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Competing Interests
The authors declare no competing interest.

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Appendix A

The 11-item questionnaire paired each item with a seven-point scale (1 = strongly disagree, 7 = strongly agree). Three items were reverse scored (i.e. 1, 2, 5, and 7).

(1) Talking is not my idea of fun. (reversed scored)
(2) I only talk when I have to. (reversed scored)
(3) I really enjoy having long conversations.
(4) People who know me well would describe me as talkative.
(5) I generally try to anticipate and avoid situations where there is likely a chance that I will have to talk a lot. (reversed scored)
(6) I often end up talking about topics even when they do not affect me personally.
(7) When I have to talk, I generally feel relief when the situation is over and I can stop talking. (reversed scored)
(8) I prefer talking to sitting in silence.
(9) When I have gone a long time without talking, I feel out of sorts.
(10) I enjoy talking for long periods of time about topics that interest me.
(11) The days that I enjoy the most are days when I have been able to talk a lot.

Appendix B

The eight-item questionnaire paired each item with a seven-point scale (1 = strongly disagree, 7 = strongly agree). Three items were reverse scored (i.e. 2, 4, and 6).

(1) I enjoy talking.
(2) I avoid talking when I can. (reversed scored)
(3) Talking is one of my favorite activities.
(4) In my free time, I prefer activities that involve little or no talking. (reversed scored)
(5) People who know me well would describe me as a person who enjoys talking.
(6) I am one of those people who rarely says very much. (reversed scored)
(7) People who know me well would describe me as someone who talks a lot.
(8) Talking is a fun way to pass the time.

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