



MARINA L. BUTOVSKAYA, OLEG V. SMIRNOV

WHY SEX MATTERS? DIFFERENCES IN LONG-TERM MATE PREFERENCES IN RUSSIA

ABSTRACT: The paper is aimed at the research taken to test evolutionary psychology predictions concerning gender differences in long-term mate preferences. 82 male and 132 female Moscow students (19.9 y. o. on average) evaluated 40 physical and socio-psychological characteristics of a potential partner. We tested the evolutionary psychology hypotheses which are traced back to R. Triver's theory of parental investment and sexual selection. According to this theory the selection pressure has shaped long-term mate preferences such a way that in humans males are expected to put more significance than females on the characteristics linked with a partner's reproductive qualities and ensuring their parental certainty, while females are expected to value higher than males do characteristics ensuring the partner's prosperity and willingness to invest resources in the family. The most of the results do not falsify this prediction. While both sexes emphasize love, males do tend to value more than females do a potential mate's physical appearance, absence of unhealthy habits, eyes and hair colour, waist, hip and shoulder parameters, weight, the absence of kids from previous relationships, and fidelity. Females do put more stress than males on a partner's intellect, educational level, financial prosperity, industriousness and ability to assert one's interest, social status, care, similarity in values and interests, sexual experience. Nevertheless, some results contradict the initial predictions. The feature of previous sexual experience in a mate associated with a cue to male's parental certainty is found to be less significant for males than for females. Moreover, both sexes consider it to be a positive feature. Two interrelated possible explanations are proposed: that there is no more straight association between sexual act and possible following pregnancy due to the development of contraception industry; the change in the attitude towards sex is a consequence of so-called 'sexual revolution' as a cultural phenomenon in Russian society.

KEY WORDS: Gender (sex) differences – Evolutionary psychology – Long-term mate preferences – Sexual selection – Parental investment – Reproductive potential – Reproductive strategies – Evolved psychological mechanism – Russia

INTRODUCTION

In the research presented here we tested the hypotheses initially derived from R. Triver's theory of parental investment and sexual selection (Trivers 1972). According to this theory males and females differ in their reproductive potential and therefore adopt different reproductive strategies in the course of evolution. These differential reproductive strategies are thought to be provided by specifically evolved psychological mechanisms constituting individuals' mate preferences (Buss 1999, Mealey 2000, Cosmides *et al.* 1992).

According to Trivers (Trivers 1972), female is the sex whose direct parental investment in offspring is relatively higher than the male one. In order to reproduce females have to go through a continuous pregnancy and infant's nurturance that require a lot of energy and effort, while males' direct investment is limited to a short period of copulation that is not so energetically demanding. Therefore, females have smaller reproductive potential and are predicted to be choosier in their long-term mate preferences.

From the evolutionary point of view, females' reproductive success would have increased if their mating choice were

sensitive to the characteristics of a mate, linked with his ability and willingness to inquire external resources and to invest resources in the family. The universal cues to these could be such characteristics as social status, financial prosperity, industriousness, education/skill level, activeness, and leadership/assertiveness, ability to assert/protect one's interests, care and maturity.

On the other hand, males could gain their reproductive success if their mate were able to gestate, to give birth and to nurture a healthy offspring. Therefore, it is predicted that sexual selection has shaped the evolved psychology of mate preferences in such a way that males put relatively more stress than females on characteristics of a partner linked with overall fertility and motherhood and parental certainty (Mealey 2000). Such characteristics could be physical appearance (as an overall cue of one's health condition (Buss 1999), waist-to-hip ratio (as a reliable indicator of a female's ability to successfully gestate and give birth (Singh 1993), absence of previous sexual relationships and fidelity (as straight cues to parental certainty for a male to be sure that he is investing in his own offspring and not in someone else's (Buss 1999, Butovskaya, Smirnov 2003).

The main purpose of the present study was to investigate a sample of Russian males and females, thus contributing to an extension of cross-cultural evidence of gender differences in long-term mate choice criteria and to the evaluation of the proposed theoretical explanations.

METHODS

Our research was aimed to test whether men's and women's mating preferences do correspond with the predictions given above. In order to do this we designed a survey. The research was designed in a similar way as D. Buss cross-cultural study of partner preferences (Buss 1989, 1999). Two general methodological assumptions were made: potential long-term mate's characteristics that we included into the survey reflect actual mate choice criteria; declared conscious views and attitudes of respondents that the survey represents reflect their actual mate choice criteria.

Study sample

The sample was composed of 214 subjects, 132 female and 82 male undergraduate students from various Moscow universities and colleges. The average age of respondents was 19.9 y. o. University students come from diverse socio-economic backgrounds and various parts of Russia, though mostly from the city of Moscow and its suburbs. As a sample of convenience these respondents are not representative of the larger Russian society.

Inventory

In order to test the initial hypothesis we designed a survey (in Russian) that consisted of 40 characteristics of an individual. The subjects were instructed to anonymously

evaluate each characteristic on two scales applying it to a potential long-term mate.

The first scale was **the scale of significance**, measuring from "0" (absolutely insignificant) to "6" (very significant) (Butovskaya, Smirnov 2003). The participant was to indicate how significant he/she found each personality characteristic of a potential long-term mate. The second scale was **the scale of expression**. Here the participant was to indicate the desirable extent of expression of each characteristic of a potential mate, using following measures for: *appearance (physical attractiveness)* ("0" not attractive – "6" very attractive), *constitution* (muscles developed "0" – "6"), *health* ("0" poor – "6" strong), *intellect* ("0" low – "6" high), *education level* ("0" low – "6" high), *love for children* ("0" indifference – "6" strong), *industriousness* ("0" lazy – "6" very industrious), *social status* ("0" low – "6" high), *mutual love* ("0" indifference – "6" strong), *financial capacity* ("0" minimal – "6" maximal), *similarity of interests and values* ("0" minimal – "6" maximal), *housekeeping skills* ("0" minimal – "6" maximal), *activeness* ("0" minimal – "6" maximal), *ability to assert one's interest* ("0" minimal – "6" maximal), *leadership tendencies* ("0" subordinate – "6" dominant), *care* ("0" minimal – "6" maximal), *ability to get along* ("0" minimal – "6" maximal), *communicativeness* ("0" reserved – "6" very communicative), *risk taking tendencies* ("0" minimal – "6" maximal), *eye colour* ("0" light, "1" semi light, "2" brown, "3" dark), *hair colour* ("0" blonde, "1" light, "2" brown, "3" dark), *waist circumference* ("1" narrow, "2" mid, "3" broad), *hip circumference* ("1" narrow, "2" mid, "3" broad), *shoulder size* ("1" narrow, "2" mid, "3" broad), *height* (centimetres), *weight* (kilograms), *fertility* ("–1" inability to reproduce, "0" "does not matter", "1" ability to reproduce), *previous sexual experience* ("–1" no previous sexual experience, "0" "does not matter", "1" presence of sexual experience), *children from previous marriages* ("–1" no children, "0" "does not matter", "1" presence of children from previous marriages), *fidelity* ("–1" no fidelity, "0" "does not matter", "1" fidelity), *sense of humour* ("–1" absence, "0" "does not matter", "1" "presence"), *overall harmful habits* ("–1" absence, "0" "does not matter", "1" presence), *smoking* ("–1" absence of routine consumption, "0" "does not matter", "1" presence of routine consumption), *alcohol consumption* ("–1" absence of routine consumption, "0" "does not matter", "1" presence of routine consumption), *drug consumption* ("–1" absence of consumption, "0" "does not matter", "1" presence of consumption), *snore* ("–1" absence, "0" "does not matter", "1" presence), *smell of sweat* ("–1" absence, "0" "does not matter", "1" presence), *jail conviction* ("–1" absence, "0" "does not matter", "1" presence), *nationality* ("–1" different from respondent's, "0" "does not matter", "1" same as respondent's), *permissible age difference – mate elder than respondent* (years), *permissible age difference – mate younger than respondent* (years).

For example, a person might not want the partner to be dominant (and thus put the moderate mark ["2" or "3"] for

leadership in the box of the second, the scale of expression) and therefore consider such mate's characteristic as leadership to be very significant (and thus might put the highest mark "6" in the box of the scale of significance). Another respondent might desire his/her mate to be physically very attractive (and thus put the highest mark "6" for physical appearance on the scale of expression), and therefore consider such characteristic as physical appearance to be very significant (and thus might put the highest mark "6" in the box of the scale of significance). The instruction of the survey featured the notion not to evaluate one's actual mate. In addition, respondents evaluated themselves on the extent of expression of the similar list of characteristics.

Statistical analysis

The data was processed using SPSS 10.0 for Windows. In order to find out whether the gender differences in the evaluations are statistically significant, and thus reliable, we used Kolmogorov-Smirnov test for independent

samples. Principle component analysis was used to reveal the complex set of items important for males and females in their potential long-term partners.

RESULTS

Gender differences in evaluation of potential long-term mate characteristics

The following personality characteristics of a potential long-term partner got reliably higher mean scores in male-respondents' evaluation of significance than in female-respondents: physical appearance, eye colour, hair colour, waist circumference, hip circumference, shoulder size, weight, housekeeping skills, fidelity, children from previous marriages, overall harmful habits (smoking in particular) (Tables 1 and 2). All the physical characteristics listed, except height and constitution, got reliably higher scores of significance in male-respondents' evaluations of a potential mate (Table 2).

TABLE 1. Gender differences in evaluations of significance of potential long-term mate socio-psychological characteristics (the scale of significance).

| Characteristic of a mate | MALE-RESPONDENTS | | | FEMALE-RESPONDENTS | | | Statistical significance | |
|------------------------------------|------------------|-------------|-----------|--------------------|-------------|-----------|--------------------------|-------------|
| | Rank | Mean | Std. dev. | Rank | Mean | Std. dev. | Z | P |
| Physical appearance | 6 | 4.89 | 0.83 | 21 | 4.20 | 1.15 | -4.19 | .000 |
| Smell of sweat | 13 | 4.39 | 1.66 | 19 | 4.37 | 1.83 | -0.45 | .651 |
| Snore | 25 | 3.23 | 2.28 | 28 | 3.23 | 2.08 | -0.50 | .960 |
| Health | 11 | 4.51 | 1.36 | 12 | 4.68 | 1.16 | -0.60 | .548 |
| Fertility | 7 | 4.84 | 1.68 | 8 | 5.01 | 1.47 | -0.474 | .635 |
| Age | 29 | 3.05 | 1.56 | 29 | 3.02 | 1.85 | -0.58 | .566 |
| Intellect | 4 | 4.92 | 1.05 | 2 | 5.48 | 0.69 | -4.25 | .000 |
| Education level | 17 | 4.20 | 1.28 | 9 | 4.92 | 1.04 | -4.33 | .000 |
| Love for children | 12 | 4.39 | 1.60 | 11 | 4.78 | 1.32 | -1.76 | .078 |
| Industriousness | 21 | 4.05 | 1.34 | 16 | 4.49 | 1.35 | -2.48 | .013 |
| Social status | 30 | 3.01 | 1.68 | 22 | 4.02 | 1.36 | -4.27 | .000 |
| Mutual love | 1 | 5.53 | 1.02 | 1 | 5.63 | 0.75 | -0.76 | .445 |
| Financial capacity | 27 | 3.06 | 1.68 | 18 | 4.42 | 1.24 | -5.87 | .000 |
| Similarity of values and interests | 14 | 4.35 | 1.378 | 10 | 4.83 | 1.09 | -2.44 | .015 |
| Housekeeping skills | 18 | 4.19 | 1.36 | 25 | 3.64 | 1.41 | -3.23 | .001 |
| Activeness | 15 | 4.30 | 1.09 | 14 | 4.54 | 1.14 | -1.59 | .111 |
| Ability to assert one's interests | 24 | 3.27 | 1.74 | 3 | 5.15 | 1.06 | -7.92 | .000 |
| Leadership tendencies | 26 | 3.08 | 1.56 | 27 | 3.42 | 1.43 | -1.62 | .105 |
| Care | 8 | 4.75 | 1.09 | 5 | 5.10 | 0.91 | -2.37 | .018 |
| Ability to get along | 9 | 4.65 | 1.23 | 13 | 4.61 | 1.15 | -0.35 | .727 |
| Communicativeness | 10 | 4.63 | 1.37 | 15 | 4.50 | 1.23 | -0.67 | .504 |
| Risk taking tendencies | 28 | 3.05 | 1.71 | 26 | 3.44 | 1.43 | -1.77 | .077 |
| Previous sexual experience | 31 | 2.80 | 2.00 | 23 | 3.81 | 1.90 | -3.57 | .000 |
| Children from previous marriages | 23 | 3.59 | 2.38 | 31 | 2.64 | 2.20 | -2.97 | .003 |
| Fidelity | 2 | 5.32 | 1.20 | 7 | 5.04 | 1.20 | -2.29 | .022 |
| Overall harmful habits | 20 | 4.06 | 1.91 | 24 | 3.71 | 1.62 | -2.06 | .040 |
| Smoking | 22 | 3.82 | 2.20 | 30 | 2.77 | 1.85 | -3.82 | .000 |
| Alcohol consumption | 19 | 4.17 | 1.78 | 20 | 4.26 | 1.83 | -0.77 | .443 |
| Drug consumption | 3 | 5.14 | 1.80 | 4 | 5.12 | 1.84 | -0.41 | .683 |
| Previous jail convictions | 16 | 4.29 | 2.29 | 17 | 4.48 | 2.00 | -0.004 | .997 |
| Sense of humour | 5 | 4.91 | 0.96 | 6 | 5.09 | 1.03 | -1.78 | .076 |
| Nationality | 32 | 2.00 | 1.95 | 32 | 2.48 | 2.19 | -1.23 | .217 |

TABLE 2. Gender differences in evaluation of potential long-term mate physical characteristics.

| Characteristic of a mate | MALE-RESPONDENTS | | | FEMALE-RESPONDENTS | | | Statistical significance | |
|--------------------------|------------------|-------------|-----------|--------------------|-------------|-----------|--------------------------|-------------|
| | Rank | Mean | Std. dev. | Rank | Mean | Std. dev. | Z | P |
| Constitution | 1 | 4.08 | 1.49 | 1 | 3.76 | 1.39 | -1.76 | .078 |
| Height | 6 | 3.23 | 1.64 | 2 | 3.36 | 1.74 | -0.78 | .435 |
| Weight | 4 | 3.69 | 1.65 | 3 | 3.09 | 1.74 | -2.46 | .014 |
| Eye colour | 8 | 2.19 | 2.07 | 8 | 1.49 | 1.63 | -2.24 | .025 |
| Hair colour | 7 | 2.34 | 2.00 | 7 | 1.66 | 1.62 | -2.33 | .020 |
| Waist circumference | 3 | 3.78 | 1.69 | 6 | 2.10 | 1.69 | -6.19 | .000 |
| Hip circumference | 2 | 3.80 | 1.74 | 5 | 2.34 | 1.78 | -5.48 | .000 |
| Shoulder size | 5 | 3.35 | 1.64 | 4 | 2.61 | 1.86 | -2.59 | .010 |

At the same time female-respondents displayed higher demands for *intellect, education level, industriousness, social status, financial capacity, ability to assert/protect one's interest, similarity of interests and values, care, previous sexual experience.*

The gender differences in evaluation of significance of the following partner's characteristics did not prove to be statistically significant: *love for children, health, mutual love, fertility, activity, communicativeness, leadership tendencies, ability to get along, alcohol consumption, drug consumption, snore, smell of sweat, previous jail convictions, nationality, and sense of humour.*

Mutual love was granted with highest mean scores on the scale of significance in both male- and female-respondents' preferences. *Nationality* was the least significant of socio-psychological characteristics (Table 1). *Intellect, fidelity* and *sense of humour* hit the top 6 potential mate's characteristics. Nevertheless, *fidelity* is the second in the row of most significant in males' preferences and only the seventh in females'. *Physical appearance* is the sixth for male-respondents and only 21st for female-respondents. *Partner's care* (5th) and *ability to assert/protect one's interest* (3rd) form the top of the list of females' concerns, just as the *similarity of interests and life values* with a partner (10th). Among the least significant partner characteristics for male-respondents are *financial prosperity, risk-taking tendencies, social status* and *previous sexual experience* and *age of a potential long-term mate*. Among the same list for female-respondents are *leadership tendencies, risk-taking tendencies, children from previous marriages* and *age of a potential mate*.

To reveal gender differences in respondents' preferences for expression of each personality characteristic of a potential long-term mate, we carried out Kolmogorov-Smirnov test (Table 3). Male-respondents' ambitions for a mate's physical appearance are higher than those of female-respondents, while females desire a mate of higher intellect and education level and social status, more dominant and able to assert/protect one's interest than an average mate's profile in males' preferences. Same with financial prosperities: female-respondents long to see their mates more prosperous than male-respondents do. Previous

sexual experience of a mate is a desirable feature for both – males and females, while female-respondents value it higher than male-respondents (Table 3). Males are more negativistic considering overall presence of a mate's harmful habits, while the situation with some particular harmful habits seems to be more diverse: male-respondents are more sensitive to long-term mate's tobacco consumption; female-respondents are more concerned by a potential mate's alcohol and drug consumption. Some reliable gender differences exist in the accepted age difference range with a potential mate. In the survey, we asked the respondents to indicate the accepted range extremes of the age difference between the respondent's actual age and the age of a potential long-term mate. The average upper extreme for male-respondents' preferences is 4.06 years (that is, on average, a desired mate is accepted to be maximum of 4.06 years elder than a male-respondent himself), for female-respondents' preferences the upper extreme is 8.26 years of age difference. On average, males accept a potential partner to be younger by a maximum of 3.52 years, while females – 1.8 years. The average mate, as preferred by female-respondents, is 179.5 cm tall and weighs 77.1 kg. Male-respondents prefer mates 170.9 cm tall and 57.0 kg on average. The average male-respondents' potential mate is thinner in waist, broader in hip, and narrower in shoulders than the average female-respondents' potential mate is.

At the same time, there are no statistically reliable gender differences in evaluations of desirable expression of the following characteristics of a potential long-term mate: *love for children, health, industriousness, mutual love, similarity of life interests and values, activity, care, ability to get along, communicativeness, risk-taking tendencies, snore, fertility, nationality, eye colour, hair colour, smell of sweat, sense of humour* (Table 3).

Complex evaluation of potential long-term mate characteristics (Factor analysis)

The results of factor analysis based on scores of significance of particular items (26 items were chosen for this analysis for males and females) are presented in Tables 4 and 5. A list of 26 items was created in such a way that

TABLE 3. Gender differences in evaluations of desirable extent of expression of characteristics of a potential long-term mate (the scale of expression).

| Characteristic of a mate | MALE-RESPONDENTS | | | FEMALE-RESPONDENTS | | | Statistical significance | |
|---|------------------|---------------|-----------|--------------------|---------------|-----------|--------------------------|-------------|
| | N | Mean | Std. dev. | N | Mean | Std. dev. | Z Kolmogorov-Smirnov | P |
| Physical attractiveness | 82 | 5.12 | 0.79 | 131 | 4.30 | 1.08 | -4.83 | .000 |
| Constitution/muscles developed | 82 | 3.60 | 1.26 | 131 | 4.15 | 1.03 | -3.16 | .002 |
| Height | 77 | 170.91 | 5.11 | 127 | 179.54 | 5.45 | -8.89 | .000 |
| Weight | 77 | 56.99 | 5.11 | 115 | 77.16 | 11.01 | -10.78 | .000 |
| Eye colour/light-semilight-brown-dark | 64 | 1.67 | 1.39 | 119 | 1.82 | 1.57 | -0.21 | .833 |
| Hair colour/blonde-light-brown-dark | 65 | 1.97 | 1.64 | 119 | 2.28 | 1.74 | -0.88 | .381 |
| Waist circumference/narrow-mid-broad | 82 | 1.56 | 0.50 | 126 | 1.88 | 0.35 | -4.87 | .000 |
| Hip circumference/narrow-mid-broad | 81 | 2.04 | 0.46 | 127 | 1.75 | 0.45 | -4.26 | .000 |
| Shoulder size/narrow-mid-broad | 82 | 1.72 | 0.45 | 128 | 2.48 | 0.50 | -8.59 | .000 |
| Smell of sweat/no-ins.-yes | 82 | -0.76 | 0.51 | 130 | -0.80 | 0.44 | -0.60 | .546 |
| Snore/no-ins.-yes | 82 | -0.61 | 0.52 | 131 | -0.53 | 0.57 | -0.80 | .426 |
| Health/poor-strong | 82 | 4.93 | 1.16 | 131 | 4.88 | 0.92 | -1.07 | .286 |
| Fertility/no-ins.-yes | 81 | 0.88 | 0.33 | 132 | 0.89 | 0.34 | -0.31 | .758 |
| Intellect/low-high | 82 | 4.80 | 0.95 | 131 | 5.20 | 0.88 | -2.66 | .008 |
| Education level/low-high | 82 | 4.55 | 1.02 | 131 | 4.94 | 0.98 | -2.66 | .008 |
| Love for children/indifference-strong | 80 | 4.66 | 1.25 | 131 | 4.86 | 1.14 | -0.82 | .409 |
| Industriousness/lazy-very industrious | 82 | 4.15 | 1.18 | 131 | 4.47 | 0.98 | -1.36 | .169 |
| Social status/low-high | 82 | 3.59 | 1.26 | 131 | 4.34 | 1.08 | -4.15 | .000 |
| Mutual love/indifference-strong | 82 | 5.62 | 0.73 | 131 | 5.64 | 0.73 | -0.54 | .590 |
| Financial capacity/min-max | 82 | 3.57 | 1.46 | 132 | 4.66 | 0.95 | -5.60 | .000 |
| Similarity of values/min-max | 82 | 4.45 | 1.22 | 131 | 4.66 | 1.10 | -1.12 | .261 |
| Housekeeping skills/min-max | 82 | 4.37 | 1.12 | 130 | 3.78 | 1.14 | -4.39 | .000 |
| Activeness/min-max | 82 | 4.59 | 1.08 | 131 | 4.73 | 0.86 | -0.37 | .714 |
| Ability to assert one's interest/min-max | 81 | 3.25 | 1.50 | 131 | 5.26 | 0.82 | -8.99 | .000 |
| Leadership tendencies/subordinate-dominant | 82 | 2.99 | 1.40 | 132 | 3.86 | 1.13 | -4.16 | .000 |
| Care/min-max | 82 | 4.79 | 1.06 | 132 | 5.07 | 0.91 | -1.72 | .086 |
| Ability to get along/min-max | 82 | 4.78 | 1.07 | 131 | 4.60 | 1.14 | -1.52 | .128 |
| Communicativeness/reserved-very communicative | 82 | 4.45 | 1.12 | 132 | 4.41 | 0.98 | -0.55 | .586 |
| Risk-taking tendencies/min-max | 81 | 3.20 | 1.63 | 130 | 3.45 | 1.41 | -1.47 | .141 |
| Previous sexual experience/no-ins.-yes | 81 | 0.19 | 0.62 | 132 | 0.72 | 0.45 | -5.97 | .000 |
| Children from previous marriages/no-ins.-yes | 81 | -0.67 | 0.57 | 132 | -0.53 | 0.53 | -2.29 | .022 |
| Fidelity/no-ins.-yes | 81 | 0.89 | 0.39 | 132 | 0.84 | 0.43 | -0.83 | .409 |
| Overall harmful habits/no-ins.-yes | 78 | -0.51 | 0.68 | 120 | -0.21 | 0.78 | -2.53 | .012 |
| Smoking/no-ins.-yes | 82 | -0.60 | 0.56 | 132 | -0.16 | 0.66 | -5.01 | .000 |
| Alcohol consumption/no-ins.-yes | 82 | -0.51 | 0.67 | 132 | -0.70 | 0.63 | -2.60 | .009 |
| Drug consumption/no-ins.-yes | 82 | -0.84 | 0.46 | 131 | -0.94 | 0.30 | -2.03 | .043 |
| Jail convictions/no-ins.-yes | 81 | -0.74 | 0.52 | 131 | -0.88 | 0.35 | -1.98 | .048 |
| Nationality/diff. from respondent's-ins.-same as respondent's | 81 | 0.21 | 0.47 | 129 | 0.29 | 0.49 | -1.28 | .199 |
| Sense of humour/no-ins.-yes | 82 | 0.89 | 0.31 | 129 | 0.94 | 0.32 | -1.89 | .059 |
| Permissible age difference/mate older than himself/herself | 66 | 4.06 | 2.66 | 120 | 8.26 | 5.50 | -5.83 | .000 |

only general items *appearance* and *bad habits* were included. All detail particular items for these two patterns were omitted. Female-respondents' preferences were interpreted in line with 3 main factors accounting for 33.2 % of the variance. The first factor (eigen value = 5.5) to emerge was "Father and husband", and it was accounted for component 12.1% of the variance. The second factor (eigen value = 2.1) "Personality" accounted for 10.8% of the variance, and the third one (eigen value = 1.7) interpreted was entitled

"Reproduction" and accounted for 10.3% of the variance. Male-respondents' preferences were interpreted in line with the following 3 main factors accounting for 43.9% of the variance. The first component (eigen value = 5.9) was interpreted as "Mother and housewife" accounted for 20.4% of the variance. The second factor (eigen value = 2.8) "Status" accounted for 13.3% of the variance, and the third factor (eigen value = 2.4) "Risk of infidelity" accounted for 10.2% of the variance.

TABLE 4. Factor analysis of males long-term partner evaluation.

| Characteristic | Principle components | | | |
|------------------------------------|----------------------|------|-------|-------|
| | 1 | 2 | 3 | 4 |
| Intellect | | | | .702 |
| Education level | .527 | .506 | | |
| Love for children | .721 | | | |
| Health | .609 | | | |
| Industriousness | .575 | | | |
| Social status | | .739 | | |
| Mutual love | .498 | | | |
| Financial capacity | | .834 | | |
| Similarity of values and interests | | | | .488 |
| Housekeeping skills | .720 | | | |
| Activeness | .672 | | | |
| Ability to assert one's interest | | .734 | | |
| Leadership tendencies | | | -.400 | -.398 |
| Care | .766 | | | |
| Ability to get along | .742 | | | .330 |
| Communicativeness | .504 | | | .345 |
| Risk taking tendencies | | | -.625 | |
| Previous sexual experience | | .446 | | |
| Children from previous marriages | | | .518 | -.427 |
| Fidelity | .500 | | .462 | |
| Overall harmful habits | | | .427 | -.474 |
| Fertility | .592 | | | |
| Nationality | | | .534 | |
| Sense of humour | | | -.464 | |
| Age | | | .639 | |
| Appearance | .400 | | | .328 |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

DISCUSSION

On the whole, our results regarding gender differences in long-term mate choice criteria were remarkably similar to the previous findings in many other cultures (for reviews, see Buss 1989, 1999). Statistically significant gender differences were revealed in evaluations of more than 50% of the characteristics listed in this paper.

The results in gender differences on the importance of *physical appearance* of a mate do not falsify evolutionary predictions: males do tend to value physical attractiveness of a mate higher than females do. Physical appearance is only the 21st on the list of mate characteristics ranged in order of significance for female-respondents, while the 6th on the similar list for male-respondents (see *Table 1*). The vast research enterprise on human mate preferences conducted by Buss in 37 cultures suggests that this gender difference is a cross-cultural universal (Buss 1989). For decades social psychologists have been documenting the importance of physical attractiveness in human everyday life: in judgments on friendship and mating opportunities, job and salary prospects, features of character etc. Moreover, according to the evidence coming from longitudinal research carried out since 1930 in the United

States, the role of physical attractiveness tends to increase in mate choice criteria (Kenrick *et al.* 1994, Mealey 2000, Buss 1999). In recent years evidence has accumulated that both facial and bodily attractiveness are the cues to one's developmental and hormonal health (for reviews, see Grammer 1993, Buss 1994, Thornhill, Grammer 1999). Thus, attractive individuals conferred more reproductive potential on those who chose them as mates. Features associated with reproductive benefits evolved to be attractive; so the mate value of an attractive individual is higher (Thornhill, Grammer, 1999). This explanation refers to so-called "good-genes" hypothesis, promoted by Williams (1992) and Trivers (1972). However, there are at least three more sexual-selection-based hypotheses offered to explain the evolution and functions of attractiveness (for review, see Thornhill, Grammer 1999, Andersson 1994). Moreover, six of the eight other *physical* characteristics of a potential mate turned to be of higher importance for male-respondents (see *Table 2*). *Height* and *constitution* in general are the only physical characteristics that did not prove to be statistically significant in terms of gender differences in evaluations of their significance. *Hip* and *waist circumferences* and *weight* were at the top of the list of male-respondents' preferences. This is quite in line with

TABLE 5. Factor analysis of females long-term partner evaluation.

| Characteristic | Principle components | | | |
|---|----------------------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Appearance | | .400 | | |
| Intellect | | | | |
| Education level | .692 | | | |
| Love for children | .446 | | | |
| Health | .431 | | | |
| Industriousness | .786 | | | |
| Social status | .641 | | | |
| Mutual love | | | | .621 |
| Financial capacity | .652 | | | |
| Similarity of life interests and values | | | | .396 |
| Housekeeping skills | .518 | | | .321 |
| Activeness | | .459 | | |
| Ability to assert one's interest | | .661 | | |
| Leadership tendencies | | .572 | | |
| Care | | .501 | | .586 |
| Ability to get along | | | | .755 |
| Communicativeness | | | .400 | |
| Risk taking tendencies | | .485 | | |
| Previous sexual experiences | | .680 | | |
| Children from previous marriages | | | .576 | |
| Fidelity | | | | .521 |
| Overall harmful habits | | | .534 | |
| Fertility | | | .690 | |
| Nationality | | | .602 | |
| Sense of humour | | | | |
| Age | | | .494 | |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

previous findings on waist-to-hip (WHR) ratio in females. WHR was proposed to be the reliable cue to fertility – an ability to gestate and give birth to an offspring (Hrdy 1999). According to Singh (1993) WHR is a general marker of phenotypic quality of a female, and the cross-cultural male solidarity in evaluation of attractiveness of the certain WHR is documented. In evolutionary prospective sexual selection might have shaped males' psychological mechanisms to be sensitive to these parameters of a potential mate when assessing female attractiveness.

On the contrary, females are proposed to be sensitive to physical parameters of a mate that contribute to the specifics of a male's parental investment – ability to invest indirect resources into the family (Butovskaya, Smirnov 2003). Features like *height*, *weight* and *shoulder size* parameters might have been crucial in terms of ability to acquire the resources and provide defence for the family, especially in our ancestral environment. Again, these theoretical propositions gain confirmation from our data: *height*, *weight* and *shoulder size* were the top three significant *physical* parameters of a potential mate in female-respondents' evaluations. However, the role of these parameters might have decreased in contemporary westernized society with the development of intellectual

forms of labour and institutional and technological control for direct physical violence. Are evolved psychological mechanisms flexible enough to go along with environmental requirements and restrictions? Our results suggest they are: the ability to assert one's interests (3rd rank in the list of mate characteristics ranged in order of significance for female-respondents (*Table 1*) goes along with intellect (2nd), education level (9th), and industriousness (16th) comparing to height (29th), weight (31st), shoulder size (35th).

At the very same time, the principle component analysis conducted by us revealed that features responsible for better husband & father qualities got the highest loadings on the first principle component for a desirable long-term male partner (*Tables 4* and *5*). While features providing some information about maternal qualities got the highest loadings on the first principle component for a desirable long-term female partner. It means that regardless of certain tendencies for late marriages and high rate of divorces in modern post-industrial societies, basic characteristics for being a good father and husband (mother and housewife accordingly) are still of primary importance in terms of the long-term partner choice. As reflected by the 1st principle component, females are looking for healthy males

with socioeconomic prospects and those oriented on investment in potential wife and children (education level, industriousness, social status, financial capacity, housekeeping skills, health, and love for children). While, as reflected by the 1st principle component, males are interested in fertility and maternal qualities of their future spouses, and wish to avoid cheatings (fertility, love for children, mutual love, care, appearance, housekeeping skills). The reproductive potential of future spouse is less important for females (fertility was associated with the 3rd principle component in females ratings of desirable husband's qualities), considering that personality features in males may be good predictors of being a devoted husband and father, it is not a coincidence that the second principle component for male partner was the factor of "personality". Nationality was equally unimportant for males and females for their choices of future spouses. This item was included into the 3rd principle component for both sexes. Even at present, under situation of certain national conflicts on the territory of the former Soviet Union, young males and females in Russia are not thinking about their future marriage partners from the ethnocentric positions.

Cosmides *et al.* (1992) proposed that the evolution of complex (psychological) design is a *slow process* when contrasted with historical time. Complex, functionally integrated designs are built up *slowly*, change by change (each new design feature must solve a problem that affects reproduction better than the previous one). Few thousands years of history is a small stretch in evolutionary terms (less than 1% of the time spent as Pleistocene hunter-gatherers). For this reason, *it is unlikely* that new complex designs could evolve in few generations only. Behaviour, generated by mechanisms that are adaptations to the ancient way of life, is not necessarily adaptive in modern world (Cosmides *et al.* 1992). These theoretical statements can be argued when considering the empirical evidence coming from the evaluation of the other parameter of a potential long-term mate: previous sexual experience.

The absence of *previous sexual relationships* of a potential long-term mate, along with fidelity, is considered to be one of the cues to assure parental certainty that males in humans evolved to be sensitive to their mate assessment (Buss 1999). According to Thompson (1983) there is a correlation between the absence of pre-marital sexual relationships and marriage sexual fidelity. Thus absence of previous sexual intercourse can be a predictor of fidelity. Previous research data has shown that cross-culturally, where the gender differences in significance of this feature were revealed (in 62% of the societies investigated), males put more stress on the absence of previous sexual intercourses of a potential mate (Buss 1999). This tendency is documented to be expressed mostly in traditionally oriented societies – China, Zambia, and Palestinian Arabs. On the other hand, in westernized societies the significance of this factor has decreased with least significant evaluation scores in Sweden and Germany (Buss 1999). Our results suggest that previous sexual experience of a mate is not of

a high significance for *both* male- (31st) and female-respondents (23rd) (see *Table 1*). Moreover, both sexes consider the *presence* of previous sexual experience of a mate to be rather *positive* than negative feature (Butovskaya, Smirnov 2003). Gender differences are statistically reliable: female-respondents value previous sexual experience of a potential mate higher than male-respondents do. In our research 78% of female-respondents and 76% of male-respondents had already had sexual experience (gender difference here is statistically insignificant).

Only 11% of male-respondents desired their potential mate not to have previous sexual relationships (versus 0% of female-respondents). 59% of males pointed out this parameter to be not of a big concern, while 72% of female-respondents desired their mate to be sexually experienced. The tendency for decrease of the significance (Buss 1999) and even reverse (as the present research suggests) in the attitudes toward pre-marital sexual relationships during the 20th century has been associated with the increasing socio-economical independency of women throughout recent decades especially in western societies (Buss 1999). The emergence and development of contraception techniques along with shift in attitudes towards sex can be another reason. Russian society has just recently undergone a rapid cultural change and massive influence of "Western" culture that brought the consequences of so-called sexual revolution as a "Western" cultural phenomenon of the third quarter of the 20th century. Accordingly, the fact of the shift in human psychology that has happened in few generations contradicts the above statement of Cosmides, Tooby, Barkow concerning the proposed *speed* of evolution of psychological mechanisms. Thus human psychological design has proved to be flexible enough (at least in the sphere of sexual relationships regulation) and evolved to a remarkable shift even within few generations.

Fidelity is another feature that is supposed to be associated with parental certainty. And it is not a coincidence that the third principle component for female partner described a set of characteristics indicating the probability of future fidelity. Multiple research data suggests that there are some cross-culturally universal sex differences in the scenarios evoking jealousy (for reviews, see Wiederman, Allgeier 1993). Men seem to be more sensitive to *sexual* infidelity, while females report *emotional* infidelity scenario being more upsetting; explanations of these sex differences have been controversial (Wiederman, Allgeier 1993). Our results suggest that males put more stress than females on mate's fidelity (in this research regardless the type of infidelity) (Butovskaya, Smirnov 2003). Fidelity is the 2nd significant characteristic of a mate for male-respondents, and only 7th for female-respondents. Previous cross-cultural research data also revealed the similar tendencies: American males consider sexual 'unfaithfulness' to be the least attractive characteristic (Buss 1999). The results on evaluation of significance of absence of children from previous marriages of a potential mate also suggest that

males consider this feature to be more negative than females do.

Another characteristic that both males and females evolved to be sensitive to is the age of a potential long-term mate. *Age differences* between mates are proposed to reflect sex differences in human reproductive strategies: while female reproductive potential declines with age, male fertility is not strongly age dependent, and status and income tends to increase with age. Accordingly, in terms of reproductive benefits, males should look for females at their optimal reproductive stage, that is, display preferences for youth. According to Williams (1975) females attain their highest reproductive potential by the age of 19, and this match the average age of the first child to be born in some traditional societies of the East (Severtseva 1999). Before that, according to Menken, Larsen (1986), teenage girls exhibit what they call adolescent subfecundity. Multiple research evidence suggests that cross-culturally males tend to marry mates younger than themselves, while a desirable age difference increases along with age of a groom; whereas brides of all ages marry men on average slightly older than themselves (Kenrick, Keefe 1992, Buss 1999).

Our results suggest that females do tend to desire mates older than themselves (a desired long-term mate may be 8.26 years older on average and 1.81 years younger). However, male-respondents desire mates to be almost as older as younger than themselves (a desired long-term mate may be 4.06 years elder on average and 3.52 years younger). Similar findings are reported by Kenrick *et al.* (1996) (when adolescents desired mates older than themselves). In addition to these findings, our result is consistent with "optimal reproductive stage" explanation. Nevertheless, the sociocultural factors should be taken to consideration: in contemporary Russian society teenage female may be perceived as immature and sexual relationships as untimely and thus disapproved.

Because female's parental investment is to a large extent direct and dependent on the state of *health*, males evolved to pay attention to this feature of a potential mate (Butovskaya, Smirnov 2003). Thus the results do not straightly support this possible theoretical explanation (*health* has not proved to be more valued neither by males nor by females), the assessment of *harmful habits* in general revealed that males consider the absence of a mate's harmful habits to be more important than females do. Moreover, males are more negative in their attitudes towards female's smoking, while equal percent of male- and female-respondents smoke (37%). At the same time, female-respondents consider drug and alcohol consumption more negatively. For both sexes drug consumption is the most alarming feature in the list of a mate's harmful habits.

Females' larger concern of a mate's *financial capacities* is consistent with evolutionary logic: because females' parental investment is more direct, while males' contribute mostly by 'external' resources, selection has shaped female's psychological design to be attracted by the cues

witnessing male's ability to acquire resources or predicting it. Financial capacity is a straight feature of prosperity – money is a universal means providing access to the whole variety of resources available in nowadays society. The vast research conducted by Buss (1989) evidenced that cross-culturally females tend to desire a mate's prosperity higher than males do. In the United States women value this feature of a mate twice as high as males do, in Japan – 150% higher, in the Netherlands – 36% higher. Whereas in the United States some longitude research data reveals an increase in both sexes' evaluation of significance of long-term mate's financial prosperity (Buss 1999), and this increase tends to be especially higher in male's desires, that is usually associated with the ongoing tendency for economical independency of a woman and for gender role equilibrium in "Western" society. Our data suggest that, regardless male- and female-respondents have the insignificant difference in their own financial capacity, females value a mate's prosperity higher.

Characteristics like social *status*, *intellect*, *education level*, and *industriousness*, which all are more significant for females in a potential mate, are good predictors to one's prospective and access to the resources (Butovskaya, Smirnov 2003). *Industriousness* of a mate may signal future professional success and thus potentials in resource acquisition, which tends to increase along with position in social hierarchies (Buss 1999). Investigation in 158 societies evidenced that those males who had a higher social status were more prosperous and wealthy and provided better supplement for their families (Betzig 1986). Despite of statistically significant gender differences in respondents' evaluation of this parameter, *social status* did not get a great concern while compared to other mate characteristics (22nd in the list for female-respondents and only 30th for male-respondents – see *Table 1*). On the contrary, mate's education level and especially intellect are more of a high demand for both males and females. Beyond the theoretical explanation this could be to a large extent due to the specifics of the social group examined: as a subculture, students might have education, high intellect and knowledge among their meaningful life values and thus seek for similarity with a partner. High intellect, good education, broad interests provide a nourishing environment in the family that, among many other benefits, contributes to children's successful development. The results suggest that females considered *similarity of values and interests* to be an important point in relationships with a mate, while male-respondents did not emphasize this feature that much. Whereas, males are still more concerned with the *housekeeping skills* of a potential long-term mate regardless the increasing tendency for gender roles to smooth over in Russian society. Obviously, this condition should be considered as a consequence of relative conservatism and traditionalism of Russian culture, especially in family life.

Despite the expectations, no gender differences were found in evaluations of significance of *leadership tendencies* and

activeness of a mate. Theoretically, an active partner should be more successful. Thus active hunters in our ancestry and active businessmen at present are more likely to succeed, and their families and children get more resources to prosper. *Leadership* was not highly valued by both male- and female-respondents. The tendency for gender role equilibrium, especially apparent in the subculture of young westernized intellectuals, might have revealed itself in this way. *Leadership* could be associated with dominance and competitiveness in interpersonal relationships as a side effect and thus not favoured by these individuals.

ACKNOWLEDGEMENTS

This paper was prepared with financial support of RFHR-2004.

REFERENCES

- ANDERSSON M., 1994: *Sexual Selection*. Princeton University Press, Princeton. 428 pp.
- BETZIG L. L., 1986: *Despotism and differential reproduction: A Darwinian View of History*. Aldine, Hawthorne, New York. 480 pp.
- 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., 1994: *The Evolution of Desire: Strategies of Human Mating*. Basic Books, New York. 262 pp.
- BUSS D. M., 1999: *Evolutionary Psychology. The New Science of the Mind*. Allyn and Bacon, Boston. 456 pp.
- BUTOVSKAYA M. L., SMIRNOV O. V., 2003: Gender differences in long-term partner preferences in evolutionary perspective. *Ethnographic Review* 1: 124–146.
- COSMIDES L., TOOBY J., BARKOW J., 1992: Evolutionary psychology and conceptual integration. In: J. Barkow, J. Tooby, L. Cosmides (Eds.): *The Adopted Mind*. Pp. 3–18. Oxford University Press, Oxford.
- GRAMMER K., 1993: *Signale der Liebe: Die Biologischen Gesetze der Partnerschaft*. Hoffman and Campe, Berlin. 558 pp.
- HRDY S. B., 1999: *Mother Nature*. Pantheon Books, New York. 723 pp.
- KENDRICK D. T., NEUBERG S. L., ZIERK K. L., KRONES J. M., 1994: Evolution and social cognition: Contrast effects as a function of sex, dominance, and physical attractiveness. *Personality and Social Psychology Bulletin* 20: 210–217.
- KENRICK D. T., KEEFE R. C., 1992: Age preferences in mates reflect sex differences in human reproductive strategies (with commentary and rejoinder). *Behavioral and Brain Sciences* 15: 75–133.
- KENDRICK D. T., KEEFE R. C., GABRIELIDIS C., CERNELIUS J. S., 1996: Adolescents' age preferences for dating partners: Support for an evolutionary model of life-history strategies. *Child Development* 67: 1499–1511.
- MEALEY L., 2000: *Sex Differences: Developmental and Evolutionary Strategies*. Academic Press, San Diego. 480 pp.
- MENKEN J., LARSEN U., 1986: Fertility rates and aging. In: L. Mastroianni, C. A. Paulsen (Eds.): *Aging, Reproduction, and Climacteric*. Pp. 167–175. Plenum Press, New York.
- SEVERTSEVA T. F., 1999: The lifespan of a woman in the East. In: I. Semashko, A. Sedlovskaya (Eds.): *A Man and a Woman in Contemporary World: Changing Roles and Images*. Pp. 313–319. Institute of Ethnology and Anthropology Press, Moscow (in Russian).
- SINGH D., 1993: Adaptive significance of human waist-to-hip ratio and female physical attractiveness. *J. of Personality and Social Psychology* 65: 293–307.
- THOMPSON A. P., 1983: Extramarital sex: A review of the research literature. *J. of Sex Research* 19: 1–22.
- THORNHILL R., GRAMMER K., 1999: The body and face of woman: One ornament that signals quality? *Evolution and Human Behavior* 20: 105–121.
- TRIVERS R. L., 1972: Parental investment and sexual selection. In: B. Campbell (Ed.): *Sexual Selection and the Descent of Man*. Pp 136–179. Heinemann, London.
- WIEDERMAN M., ALLGEIER E. R., 1993: Gender differences in sexual jealousy: Adaptationist or social learning explanation? *Ethology and Sociobiology* 14: 115–140.
- WILLIAMS G. C., 1975: *Sex and Evolution*. Princeton University Press, Princeton, New York.
- WILLIAMS G. C., 1992: *Natural Selection*. Princeton University Press, Princeton, New York.

Marina L. Butovskaya
 Centre of Evolutionary Anthropology
 Institute of Ethnology and Anthropology
 Russian Academy of Sciences
 Leninskiy prosp. 32a
 117334 Moscow, Russia
 E-mail: butovsk@orc.ru

Oleg V. Smirnov
 Institute of Psychology
 Russian State University for the Humanities
 Moscow, Russia
 E-mail: sendso@yandex.ru