Partners' personality similarity – big data evidence for initial assortment

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Abstract

Clearly partner choice is an important preoccupation in our lives: 43 percent of Americans over the age of 18 are single and actively looking for a partner (US Census, 2009). Divorce rates are at an all-time high. Personality similarity is often assumed part of how a meaningful partner connection is made, yet despite decades of research the effects remain unclear and large-scale studies are still lacking. Here, personality similarity from 7,118 couples was estimated using Big Five and life satisfaction scores from the Facebook application myPersonality. Similarity was quantified using rescaled D-indices (Cronbach & Gleser, 1953), Pearson correlation and the intraclass correlation (McCrae, 2008). All three indices showed consistent positive assortative mating by personality, with individuals choosing a partner more similar than friends or unrelated couples. Similarity did not vary for people in different stages of a relationship (dating phase, engagement and marriage) and was consistent across all Big Five traits. The same preference towards similarity was found for homosexual couples. On the individual level, high scores on conscientiousness and extraversion and a low score on agreeableness, predicted an increased chance of being in a relationship. These results suggest personality similarity is a reliable early criterion in couple formation, yet not specifically tied to relationship success.

Keywords: assortative mating, partner choice, relationships, personality, Facebook

What makes two individuals choose each other out of all potential others? For years psychology researchers have tried to find the predictors associated with a good couple: why some come and stay together whereas others break up. Assortative mating has been posited as the mechanism behind what is assumed to be to some extent a nonrandom selection. Models of assortative mating are typically split into similarity (positive assortment) or complementarity (negative assortment) models.

The similarity-attracts model predicts highly similar partners will be considered as more attractive and fulfilling in romantic relationships (Hinde, 1997; Klohnen & Luo, 2003). Similarity correlations have previously been reported across a wide range of factors, including physical facial attractiveness (Little, Burt, & Perret, 2005), political (Klofstadt, Dermott, & Hatemi, 2012) and religious beliefs (Hur, 2003), IQ (Escorial & Martin-Buro, 2012; Watson et al., 2004) and personality traits (Watson et al., 2004). For personality traits however, there is mixed evidence concerning the importance of similarity. Two kinds of studies can be distinguished here. The first represents investigations into assortative mating for personality, specifically into the question whether a positive or negative trend exists. Second, there are those investigating whether couples who follow this trend are also the happiest. Personality similarity between partners has been established in previous studies (Barels, 2005; Gattis, Berns, Simpson, & Christensen, 2004; Luo & Klohnen, 2005), although effect sizes were often marginal, leading Eysenck (1990) to conclude that "mating is essentially random for personality traits" (p. 252). These studies however lacked the statistical power to detect small effects, and estimates were likely underestimated through issues of rating bias and rater accuracy (Decuyper, De Bolle, & De Fruyt, 2012; Kenny & West, 2010; Podsakoff, MacKenzie,

Lee, & Podsakoff, 2003). Similarly, a positive relationship between personality similarity and relationship satisfaction has been found by some (Luo & Klohnen 2005), but not others (Gattis et al., 2004; Glicksohn & Golan, 2001; Russell & Wells, 1991), which might be due to different personality measures (BFI, NEO Five-Factor Inventory, EPQ-R-S) and different experimental groups involved (happy newlyweds versus distressed couples). The similarity of some traits may also be more important than others, for example Luo and Klohnen (2005) found that most variance in relationship satisfaction is already explained by the similarity of agreeableness and openness.

The complementarity hypothesis states that people are attracted to profiles that supplement the traits in which they feel lacking. It was originally proposed as a needs model by Winch (1958). Its basic hypothesis is that each individual chooses a mate which provides maximum need gratification, accomplished through selecting complementary traits. The model received experimental support from Shiota and Levenson (2007) who found that dissimilar partners also report higher relationship satisfaction. The focus of this study was on older, married couples (age 40 to 60 years) which might explain why complementarity was beneficial. As couples progress through different stages in life, the change in demands outside of marriage may lead to different effects of Big Five similarity (Shiota & Levenson, 2007).

Despite the mixed empirical support for personality similarity between partners, many people genuinely believe in a personality match to their partner (Ready et al., 2000; Watson et al., 2000), and major commercial companies habitually provide personality assortative tests to their users, as part of a multibillion dating industry.

Individual vs. couple-centered effects on relationship outcomes

The effect of an individual's personality (person centered) needs to be distinguished from personality similarity (couple centered). Research by Layard (2005) suggests an individual's personality traits are actually the stronger predictors of their relationship satisfaction. Low agreeableness and high neuroticism consistently emerge as predictors of negative relationship outcomes such as relationship dissatisfaction, conflict, abuse and ultimately dissolution (Karney & Bradbury, 1995). The importance of neuroticism was shown in a meta-analysis by Heller, Watson and Ilies (2004) and by Robins, Caspi and Moffitt (2002), who also noted that neuroticism and relationship dissatisfaction seemed to mutually reinforce each other. Similar negative effects have been reported for low conscientiousness and low agreeableness profiles in dating couples (Watson et al., 2000) and low conscientiousness and extraversion in marriage (Claxton, O'Rourke, Smith, & DeLongis, 2012; Watson et al., 2000). Naturally, a predisposition to easily experience anger, distress and retreat from interaction can be harmful to romantic relationships (Gottman, 1994).

The couple centered approach explicitly focuses on dyad sets of personality traits. In this approach the full sets of traits are combined. Personality similarity captures the interaction pattern of two sets of scores. For example, it allows one to readily see if extraverted individuals are more likely to pick other extraverted partners, or whether highly similar partners are also more likely to marry. Previously, Caspi and Herbener (1990) and Thiessen, Young and Delgado (1997) have found evidence for modest but positive assortative mating, although again the evidence is mixed since other studies find

no effect (Glicksohn & Golan, 2001; Gyuris, Bernath & Bereczkei, 2006; Klohnen & Mendelsohn, 1998).

Initial Assortment, Partner convergence and partner reappraisal

One common explanation for these inconsistencies is that similarity effects are not due to initial choice (assortative mating), but because of a gradual partner convergence in personality. Partners might become more similar as a function of time. Personality however is generally found to be very stable across time (Costa & McCrae, 1994; Klohnen & Bera, 1998), with no evidence that personality convergence actually occurs (Buss, 1984; Caspi & Herbener, 1993; Feng & Baker, 1994; Glicksohn & Golan, 2001; Watson et al., 2004).

More likely, some of these similarity effects might be the product of participants' rating heuristics. The first of such heuristics is *partner reappraisal*. Spouses often share an inherent belief in what traits constitute a good partner. In happily married couples, the partner's actual personality gets reappraised to fit closer to that ideal, with socially desirable traits being overestimated (extraversion, openness, agreeableness and conscientiousness), while undesirable ones are underrated (neuroticism) (Claxton et al., 2012). A closely related strategy raters employ is *assumed similarity*, the tendency for people to rate loved ones as more similar to themselves. Previous studies have shown assumed similarity to be a rating strategy used especially when trait-relevant information about the partner is lacking (Ready, Clark, Watson, & Westerhouse, 2000; Watson, Hubbard, & Wiese, 2000). Perceptual accuracy should therefore be taken into account

whenever possible when relying on partner ratings, as it interacts with perceived and actual similarity (Decuyper et al., 2012).

Gender and sexuality differences in personality

Consistent, cross-cultural gender effects have been found for the personality traits of neuroticism, agreeableness and openness to feelings/ideas (Costa, Terracciano, & McCrae, 2001). Though these differences are small as compared to individual variation within genders, they are most pronounced in Western cultures (Costa et al., 2001), justifying controlling for gender differences when estimating couple similarity. Men and women generally differ in their base level of Big Five traits, reducing their similarity to each other.

Consistent sexual orientation effects on personality traits might also exist. Sparse published research is available on this, but existing studies do point to sexual orientation differences in personality. When investigating lesbian personality for example, Hopkins (1969) noted lesbian women differ from their heterosexual counterparts in a number of facets, including being more 'independent', 'resilient' and 'reserved'. A similar study by Evans (1970) found homosexual males to differ from heterosexuals in nine personality factors, using the 16 PF Questionnaire. More recently, Zheng, Lippa and Zheng (2011) found Chinese homosexual males to be more emotional (as measured by the 100-item IPIP inventory), while Lippa (2005) found small-to-moderate effects in all Big Five traits. As such, investigation of personality effects in homosexual couples should take into account different baselines.

Past studies have found it difficult to recruit couples and, as a result, have limited sample size and generalisability. Our study uses a sample of 7,118 couples, which is about a hundred times the size of the typical sample. Additionally, many studies rely on explicit and reimbursed ways of couple recruiting, making blind or double-blind experiments impossible (i.e., couples knew their relationship would be tested) (e.g., Decuyper et al., 2012). In addition, many samples have been based on students (e.g., Klohnen & Luo, 2003) or newly-weds (e.g., Luo & Klohnen, 2005), introducing a restriction of range that limits generalisability even further. Other studies relied on data obtained from online dating, where individuals are motivated to exhibit more socially attractive traits, which would boost couples' apparent similarity. Furthermore, these samples are often unrepresentative, with certain personality profiles also being more inclined to misrepresent themselves than others (Hall, Park, Song, & Cody, 2010). Limitations like these could explain the mixed nature of previous findings, as reported in recent meta-analyses like Malouff, Thorsteinsson, Schutte, Bhullar, & Rooke (2010).

In the current study we address these problems and extend previous research in several important ways. (a) We examined the robustness of assortative mating for personality using a large sample with minimal social desirability bias. (b) Our analysis was not limited to merely heterosexual married couples, but includes homosexual couples and various relationship statuses. (c) We examined the effect of personality similarity using both correlation-based and difference-score-based indices, identifying the resulting differences in scores and effect size.

Based on the findings of previous studies, both in person-centered and couple-centered research, we made the following predictions. First, we expected to see positive

assortment for partners as compared to friends or random others. Second, we predicted a selection-effect for relationship status in which the most similar couples would also be the ones continuing on to marriage. This would be observed from a higher mean and/or reduced standard deviation for personality similarity in married couples. Third, based on previous studies we predicted that traits like conscientiousness and agreeableness are better predictors of being in a relationship than others. Fourth, similar to Gyuris et al. (2006), we expected to see positive assortative mating for both heterosexual, lesbian and gay couples.

Method

Data collection

Participant data was gathered using myPersonality, a Facebook application that offers its users personality assessment and feedback (Stillwell & Kosinski, 2011). Users were not specifically approached or recruited, nor were they paid to install the application or to participate in research. Instead these users were self-motivated by the prospect of receiving reliable feedback test scores. Users had the opportunity to explicitly opt-in for their test and user data to be anonymously used in research. When selected, the application retrieved Facebook profile information, demographics, gender, location, age, relationship status, partner id and social network data from the user through the Facebook Application Programming Interface (API). At the time of writing, more than 6 million users completed a personality questionnaire on myPersonality.

Personality assessment

The Big Five personality traits of openness, conscientiousness, extraversion, agreeableness, and neuroticism were measured using the 100-item IPIP representation of the NEO-PI-R scale (Goldberg et al., 2006), offered through the myPersonality application. Self-report ratings using this questionnaire have been widely used and extensively validated (Goldberg et al., 2006). Furthermore, the myPersonality application itself ensures high test result validity by removing inattention effects, language incompetency or random responding. The resulting quality of the responses is high: the scales' reliabilities are on average higher than reported in test manuals (Goldberg, 1999) and the discriminant validity (average $r(153838) = .16$, $p < .001$) (Kosinski, Kohli & Stillwell, 2012) is better than those obtained using traditional samples (average $r(460) = .20$, $p < .001$) (John & Srivastava, 1999). Internal reliability values are high (Cronbach's α: E = .93, N = .92, C = .91, A = .87, O = .83).

In addition we measured participants' global life satisfaction using the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The SWLS has been used in psychological research for over 20 years to study global judgements of wellbeing, and has excellent internal (Cronbach's α: O = .87) and temporal reliability (2-month test-retest $r(174) = .82$, $p < .001$), with the advantage that it can be used for different age groups (Diener et al., 1985; Neto, 1993).

Sample

Our first sample contained relationship status data from 6399 heterosexual couples (N = 12,798). Inclusion criteria were a minimum age of 16, a relationship status of either 'In a Relationship', 'Engaged' or 'Married' and both partners having taken the

Big Five IPIP Personality test. For this sample, men's average age was 26 years (*SD* = 7.16, ranging from 16 to 60 years). Women's average age was 25 years (*SD* = 6.61, ranging from 16 to 60 years). In terms of relationship status, 63% of the couples indicated to be 'In a relationship', 11% were engaged and 26% were married. Complete SWLS data (both partners) was available from 77 couples, partial data (1 partner) for 794 couples.

In addition, we acquired a sample of 550 lesbian couples (mean age 24, *SD* = 7.28, 8% of the original couples sample), ranging from 16 to 50 years. In terms of relationship status, 27% of the couples indicated to be 'In a relationship', 13% were engaged and 60% were married. We also acquired a sample of 169 gay couples (mean age 27, *SD* = 10.11, 2% of the original couples sample), ranging from 17 to 49 years. 59% of the gay couples indicated to be 'In a relationship', 12% were engaged and 28% were married. No SWLS data was available for these groups. Three couples were removed from the dataset because of fake Facebook profile data associated with one of the partners.

Demographic

After obtaining opt-in consent from the user, myPersonality retrieved the Facebook profile information associated with that user through Facebook's API. As for age and gender distributions, our participants (mean age 25, *SD* = 6.90; 48% male and 52% female) do not differ from typical Facebook users, with a slight overrepresentation of female users and a 75% majority being within the 16 to 34 age group (McAndrew & Jeong, 2012).

Profile similarity measures

Similarity between partner's Big Five profiles were measured using an adjusted version of Cronbach and Gleser (1953) D-indices, Pearson correlation (Furr, 2010) and intraclass correlation coefficient (double entry; ICC_{DE}, further referred to as ICC) (McCrae, Stone, Fagan, & Costa, 1998). Cronbach and Gleser (1953) showed that the individual profiles can vary in three major ways: elevation (the average level of scores), scatter (the variability of scores) and shape (patterning of scores) (Figure 1). D-scores measure differences in elevation and scatter, Pearson correlation measures profile shape, while ICC combines all three aspects.

[Figure 1]

The first similarity measure is a rescaled D-score. If we represent the variables by orthogonal axis, the Euclidean distance D between two Big Five profiles (x_1, x_2) can be calculated in the following way:

$$D_{12} = 100 - \sqrt{\frac{\sum_{j=1}^{5}(x_{j1} - x_{j2})^2}{5}} \quad (1)$$

This formula represents a rescaled version of the D^2 measure proposed by Cronbach and Gleser (1953):

$$D_{12}^2 = \sum_{j=1}^{k}(x_{j1} - x_{j2})^2 \qquad (2)$$

Where k = 5, and individual scores ranging from 0 to 100. It is preferable to use a measure of D over D^2, since larger differences between profiles are exaggerated in

squaring. D is less skewed than D^2, but not necessarily normally distributed (Cronbach & Gleser, 1953). The advantage of using our rescaled version is that for Big Five scores ranging from 0 to 100, the D-score is always a positive number between 0 and 100, and thus more easily interpretable. D-scores are sensitive to elevation and scatter, but not shape (Figure 1).

As a second similarity measure we report a Pearson correlation between the two profiles. Pearson correlations are sensitive only to the shape of a profile; they ignore differences in elevation and scatter (Terracciano & McCrae, 2006). Thus, it provides supplementary insight to a D-score (Figure 1).

$$\rho_{X,Y} = \frac{\text{cov}(X,Y)}{\sigma_X \sigma_Y} \qquad (3)$$

Finally, a third measure of similarity is the double-entry intraclass correlation coefficient (double entry; ICC). The ICC is a Pearson correlation between two doubly entered profiles; that is, it can be computed by appending each profile to the end of the other to form two doubly entered columns of data and then computing the Pearson correlation between the doubled columns (McCrae, 2008).

$$ICC_{DE} = \frac{2\sigma_{XY} + \frac{1}{2}(\overline{X} - \overline{Y})^2}{\sigma_X^2 + \sigma_Y^2 + \frac{1}{2}(\overline{X} - \overline{Y})^2} \qquad (4)$$

The ICC is an omnibus index: it takes into account all three elements of elevation, scatter and shape. The ICC ranges from -1 for total dissimilarity, to 1 for identical profiles, and is widely accepted as the preferred single index for profile similarity (Furr, 2010; Gongalez & Griffin, 1999; McCrae, 1993). It cannot be calculated for individual

traits however, and its sensitivity to elevation, scatter and shape might also be considered a conceptual weakness, as meaningful differences in one of these three may be obscured by the two others (Furr, 2010).

Results

Personality differences in gender and age

We investigated gender differences on personality traits using analysis of variance (ANOVA)(N = 232,448). If the Levene statistic showed that the variance of both groups was heterogeneous, the Welch correction was applied. Women scored higher on conscientiousness ($F^a(1, 6389) = 4.27$, $p = .04$), agreeableness ($F^a(1,6394) = 38.8$, $p < .001$) and neuroticism, $F(2,641) = 29.2$, $p < .001$). These effects are important because gender differences might dilute the personality match in different-sex dyads, such as couples or different-sex friends. To control for gender effects, we compared members of couples only with friends or members of other couples, with the same gender as one's significant other. The influence of age on these couples' traits was non-significant.

Personality similarity in heterosexual couples

For our analysis we defined three reference groups of similarity, based on interpersonal proximity: romantic partner, different sex friend and stranger (i.e., a different sex partner from another couple). The assumption of normality was tested by Kolmogorov-Smirnov tests and Shapiro-Wilks tests for all three similarity measures (D, r, ICC). Similarity_D ($W = .98$, $p = .005$), similarity_r ($W = .95$, $p < .001$) and similarity_{ICC} ($W = .97$, $p < .001$) were all significantly non-normal. A deviation from normality was

not unexpected given the sample size, and QQ-plots showed a strong normality fit with left skew and heavy positive and negative tails.

We compared partner similarity to friend similarity, and the similarity to partners from other couples. A between-groups MANOVA revealed a significant effect of proximity (stranger, friend, partner) on the similarity between dyads: $F(6, 34326) = 45.8$, $p < .001$. Follow-up ANOVA indicated differences in D-scores ($F(2, 17165) = 87.3$, $p < .001$), Pearson correlation ($F(2, 17165) = 68.2$, $p < .001$) and ICC ($F(2, 17165) = 36.2$, $p < .001$). Romantic partners are more similar to each other (ICC = .18) than they are to their different-sex friends (ICC = .16) or strangers (ICC = .13), pointing to more stringent criteria in people's choice of partners. Closer inspection reveals the difference was most profound in the shape of partner profiles (i.e., Pearson correlation ranging from .22 to .30), with only minor effects of elevation and scatter (Figure 2).

[Figure 2]

Personality similarity and life satisfaction

SWLS data was obtained from 794 individuals. Partners resemble each other in their reported life satisfaction: $r = .34$ ($n = 77$, $p = .0012$). Their reported life satisfaction is linked to their personality similarity with their partner. Both $similarity_{ICC}$ ($r(792) = .15$, $p < .001$) and $similarity_{r}$ ($r(792) = .11$, $p < .001$) show significant positive correlations. Highly similar couples tend to report higher satisfaction with life. Again, the effects of elevation and scatter ($similarity_{D}$) are much less pronounced: $r(792) = .003$, $p < .001$).

Effect of the individual traits

D-scores for each trait separately mimicked the main effect of all traits, with a significant difference for couples vs. strangers in openness ($t(9434) = 9.17$, $p < .001$), conscientiousness ($t(9167) = 8.00$, $p < .001$), extraversion ($t(8863) = 6.19$, $p < .001$), agreeableness ($t(9320) = 6.03$, $p < .001$) and neuroticism ($t(9474) = 5.00$, $p < .001$). D-scores did not significantly differ for couples and friends, except for openness ($t(10570) = 3.62$, $p < .001$) where couple similarity was significantly higher.

Correlations for individual Big Five traits between heterosexual partners were consistently positive, with the highest correlations for openness ($r(6397) = .16$) and conscientiousness ($r(6397) = .12$), followed by extraversion ($r(6397) = .08$) and agreeableness ($r(6397) = .08$). There was no such trend for neuroticism ($r(6397) = -.003$), despite its predictive power for relationship satisfaction in person-centered analysis. The correlations also did not significantly vary over relationship type: ranging from .02 to .15 (mean $r(4010) = .10$) for dating couples and from -.03 to .13 (mean $r(1686) = .05$) for married couples. In friends the correlations were again similar: openness ($r(6397) = .13$), conscientiousness ($r(6397) = .10$), extraversion ($r(6397) = .11$) and agreeableness ($r(6397) = .06$), with a lack of effect for neuroticism ($r(6397) = -.003$). All these correlations were highly significant ($p < .001$) yet small, indicating only a limited effect of any single trait on initial partner choice.

Direct logistic regression was used to assess the impact of a number of factors on the likelihood of being single versus in a relationship (with 'in a relationship', 'engaged' and 'married' collapsed into one variable). The model contained seven independent variables (openness, conscientiousness, extraversion, agreeableness, neuroticism, age,

gender). The full model containing all predictors was statistically significant (χ^2 (7, N = 144,707) = 673, $p < .001$) and explained between 4.8% (Cox and Snell R^2) and 6.4% (Nagelkerke R^2) of the variance. Five independent variables made a statistically significant contribution to the model (conscientiousness, extraversion, agreeableness, age and gender). The strongest predictor of being in a relationship was gender, recording an odds ratio of 2.07. This indicated that female respondents were twice as likely to report being in a relationship, controlling for all other factors in the model. The odds ratio of .99 for agreeableness was less than 1, indicating that for every additional point on the agreeableness scale respondents were .99 times less likely to report being in a relationship, controlling for other factors in the model. Odds ratios for conscientiousness and extraversion were slightly above 1, indicating a modest but positive effect.

Personality differences in sexuality

Homosexual couples differ from their heterosexual counterparts in that they lack the gender differences normally found in personality profiles. As such, gender was controlled for by comparing these partners to same-sex friends and other same-sex partners from couples (strangers). Homosexual individuals may also differ from their heterosexual counterparts because of personality differences associated with their sexual preference. For our sample of same-sex couples this appeared to be the case: homosexual men reported higher openness scores, as compared to both heterosexual men and women. In contrast, their conscientiousness scores were significantly lower as compared to both heterosexual groups. In terms of neuroticism these men scored in between the two heterosexual sexes: being more emotional than heterosexual men, but still significantly

less than heterosexual women. There was no difference in extraversion or agreeableness (Table 1).

[Table 1]

Just like homosexual men, lesbian women in our sample reported higher openness, as compared to both heterosexual groups. Their conscientiousness scores were significantly lower as well, again as compared to both heterosexual groups. The lower agreeableness scores for lesbian women were comparable to those of heterosexual men. Their neuroticism scores on the other hand were comparable to those of heterosexual women (Table 2).

[Table 2]

Personality similarity in homosexual couples

Same-sex couples, just like heterosexual couples, display a strong preference for personality similarity (Figure 3). The trend is exactly the same, with partners being more similar than friends and strangers. In gay couples, ICC similarity scores (M_{ICC} = .29, SD_{ICC} = 0.42) are significantly higher than for heterosexual couples (M_{ICC} = .18, SD_{ICC} = 0.45; t_{ICC} (199) = 3.37, $p < .001$). This was to be expected since these couples lack the gender differences in personality associated with different sex couples. However the ICC difference in mean similarity between couples and strangers from other couples is also larger (ICC = .10 for gay men and ICC = .05 for heterosexuals), pointing to a relatively

stronger personality similarity in gay couples than exists for heterosexual couples. This difference seems to be attributable to a better matching shape of the personality profiles (Pearson correlation), as compared to heterosexual couples. Interestingly however, the similarity scores for lesbian couples were not different from heterosexual couples: $t(772) = -1.36$, $p = .17$. The same trend in heterosexual and homosexual couples supports the hypothesis that personality similarity is important regardless of sexual preference.

[Figure 3]

Relationship category analysis

Although our study lacks any true within-subject longitudinal data, a reasonable longitudinal trend can still be derived by separating the results according to relationship type. This is because of a general latent progression from 'In a relationship' to 'Engaged' and finally 'Married', with the possibility of the relationship failing and falling back to 'Single' in each stage. On average married couples will have been together longer and have undergone a much longer selection process than the two other relationship groups. Therefore, if personality similarity is important in relationship success, we would expect to see a clear trend, be it a positive one towards similarity, or negative towards complementarity. In both cases, the standard deviation should be further and further reduced as time goes on.

A linear regression on $similarity_{ICC}$ revealed only non-significant effects of age ($b = 0.01$, $t(640) = 1.08$, $p = .28$), and relationship type ($b = 0.05$, $t(640) = 0.91$, $p = .36$) in heterosexual couples. The same result was obtained for $similarity_D$ and $similarity_r$. Means

and standard deviations did not vary significantly: 'In a relationship' (M = .20, SD = 0.44), 'Engaged' (M = .15, SD = 0.47), 'Married' (M = .14, SD = 0.45). Hence there is no evidence that couples grow more similar as the relationship matures, or that more similar couples are the ones who get married. The same was true for gay and lesbian couples.

As a follow-up, we checked whether any individual personality trait is important for relationship progression. We modeled the effect of relationship status on the $similarity_D$ for each trait separately, correcting for age. All models (ANOVA) remained non-significant.

Therefore, although we do find partner similarity in relationships, there is no evidence for the importance of a personality match in relationship progression.

Discussion

In this study we presented evidence for greater personality similarity in couples, both as compared to these couples' friends or others. Personality similarity is also positively correlated with the life satisfaction both partners experience. The trend of similarity most strongly emerges for profile shape (captured by Pearson correlation and ICC). Little or no differences in elevation or scatter occur between one's choice of friends and one's partner, both for the general Big Five profile as well as separate traits.

Personality similarity has limited impact on the actual progression of relationships though: we found no evidence for married couples being more similar than engaged or dating couples. There is no evidence that couples grow more similar as the relationship matures, or that more similar couples are the ones who get married. We have also found

personality traits to be stable over time, with no indication that people would grow more similar through aging.

In sum, personality similarity seems to be important early on in relationship formation (dating), but it is not predictive of whether or not that couple makes it into marriage. On the other hand, choosing a similar partner is associated with higher life satisfaction. Since life satisfaction is a broad measure that includes aspects unrelated to relationship satisfaction, the correlation we find is more remarkable.

When looking at individual traits (N = 144,707), we found significant effects of conscientiousness, extraversion and agreeableness on whether individuals are likely to report being single or in a relationship. Individuals low on conscientiousness and extraversion, and high agreeableness are more likely to stay single, although the effects are quite modest. This finding reflects the meta-analysis results of Malouff et al. (2010; N = 3,848), who found a similar effect of conscientiousness and extraversion on relationship satisfaction. The effect of one trait was however reversed, namely agreeableness. We find high agreeableness to be characteristic of people that stay single, while according to Malouff et al. (2010), high agreeableness is also indicative of high relationship satisfaction. How can these findings be reconciled? One possible explanation might be the cultural image of success associated with competitive and outspoken individuals. While these individuals may be found attractive, they may not necessarily make the best partners.

As opposed to the overall profile similarity, does the similarity to your partner in individual traits matter? Compared to random dyads, couples are more similar, as measured by similarity$_D$ across every trait. However couples are no different when

compared to friends, something we also noted for the similarity$_D$ main effect (Figure 2). This implies a uniform partner-friend population, at least in regards to the elevation and scatter of Big Five personality profiles. Correlations for all traits between partners were positive, although the strength of these correlations remained limited. Correlations also did not vary for the different relationship types (dating, engaged or married). Thus, we find evidence for only minor effects of individual personality traits rather than the overall personality profile, which do not seem related to relationship progression.

We further expanded on previous research by also investigating these effects for lesbian and gay couples. The same trend in all three sexuality groups (heterosexual, lesbian, gay) supports the idea that personality similarity is important regardless of sexual preference: all people look for a profile with highly similar shape to one's own. An interesting finding was that gay men share greater average similarity than heterosexuals, even after accounting for the lack of a gender difference. Possibly gay men meet through a number of different social channels, which already act as a preliminary filter for different personality types. Alternatively, gay men may be more attuned to the subtle indicators of personality when choosing a partner. Further research is warranted to investigate this effect.

Lots of factors are involved in human partner choice. Personality has often been deemed one of those, but the evidence is mixed. In this study we found across a large sample that personality similarity is a reliable factor: people choose a similar partner. The importance of similarity is further backed up by the correlation with life satisfaction: similar partners are happier partners. The fact that personality similarity does not change

by relationship type suggests that this personality match is not critical to relationship progression though. Even among married couples, there continues to be the same large variety in similarity scores. The large initial variation in personality similarity for dating couples, might simply be because personality-based characteristics take much longer to be known than, say, physical attractiveness or IQ. Thus, they are not likely to play a more substantial role until later in the relationship development process (Luo & Klohnen, 2005). If people do need time to accurately assess their partner's personality, it might be that the bond they establish in the mean time evens out most of those differences.

The current study conforms to recent calls for research methodologies with sufficient power to detect the small, but important effects associated with personality similarity (Reis, Capobianco, & Tsai, 2002) and a comprehensive set of statistical similarity measures (Furr, 2010). Our results show consistent positive assortment for personality, evidently based on initial assortment in human partner choice. Future research may continue this line of work, by looking at cultural effects, social trends in both dating/marriage, or through further investigation of the initial choice individuals make, as they select partner candidates from the dating pool.

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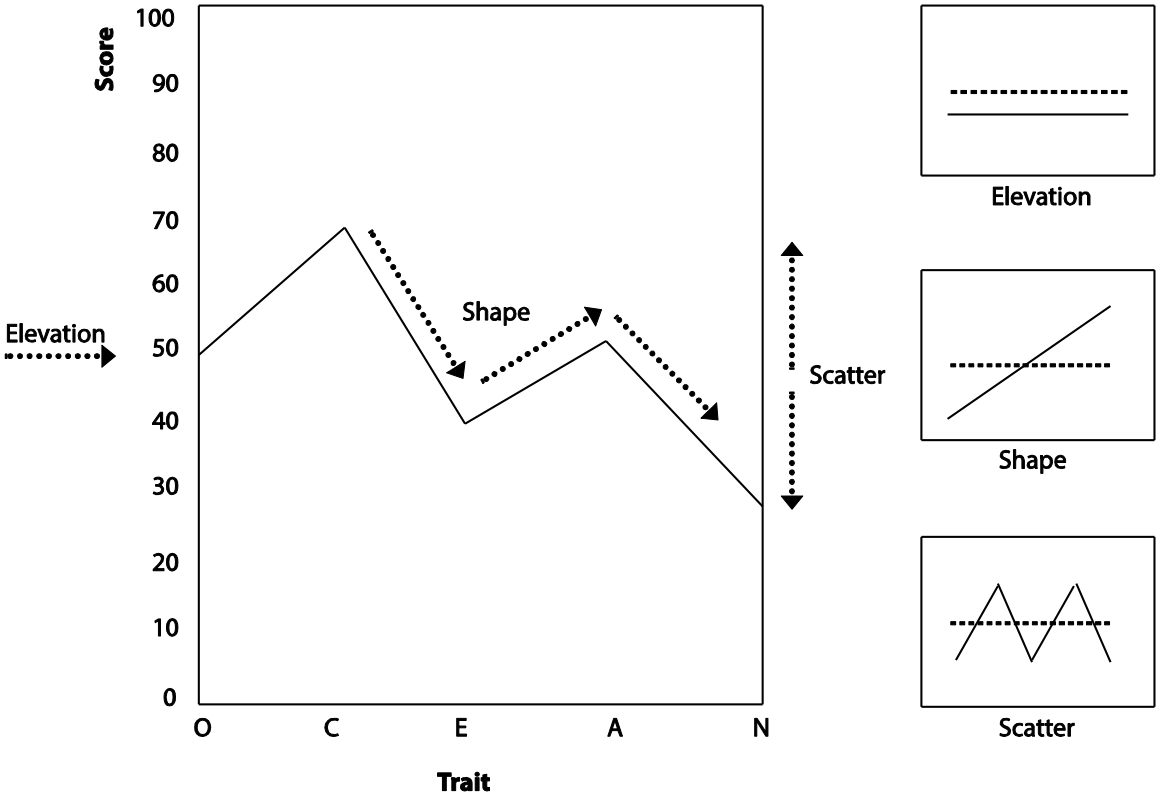
Figure captions

Figure 1. Three Components of a Big-5 Personality Profile.

Figure 2. Main Effect of Personality Similarity (Assortative Mating). Error Bars Show Standard Error.

Figure 3. Personality Similarity in Homosexual Couples. Error bars Show Standard Error.

Figure 1


Score
100
90
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70
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Trait
Elevation
Shape
Scatter

Figure 2

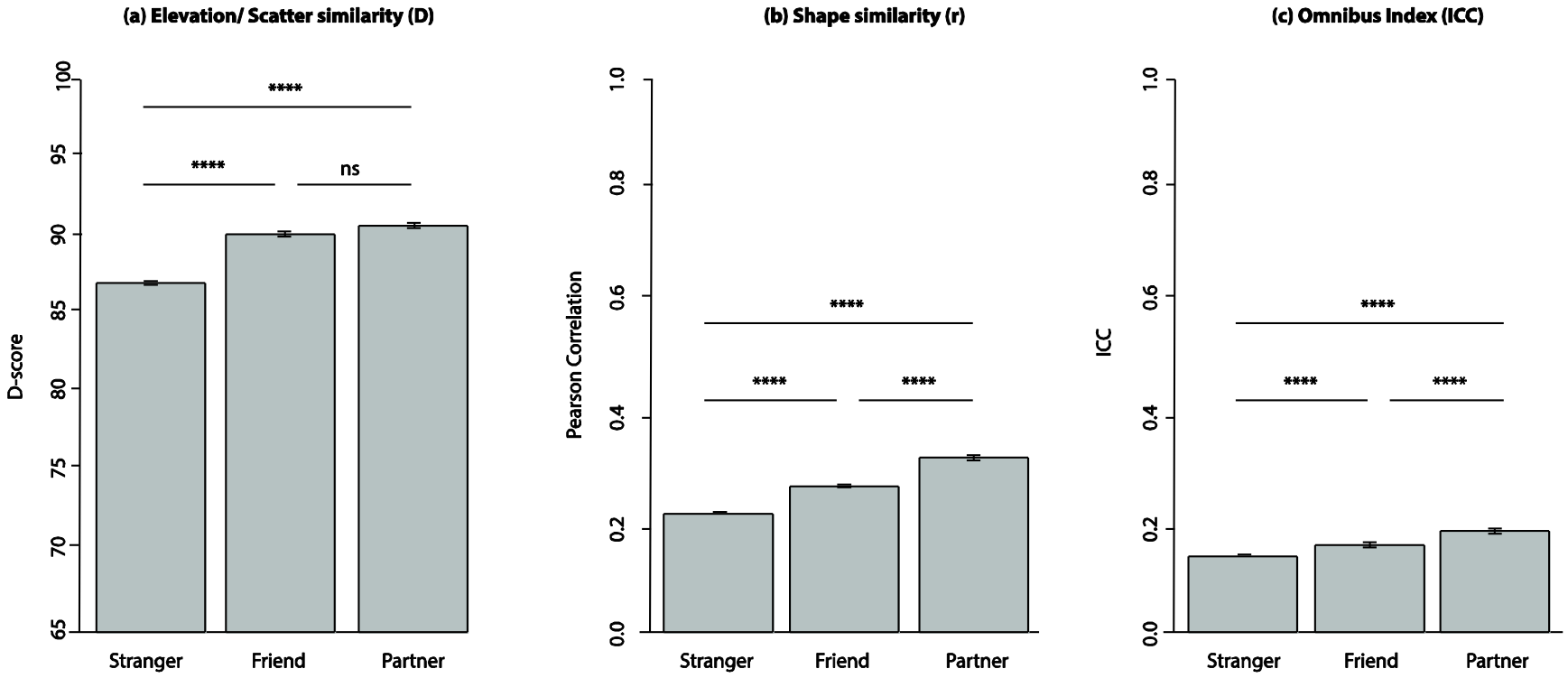
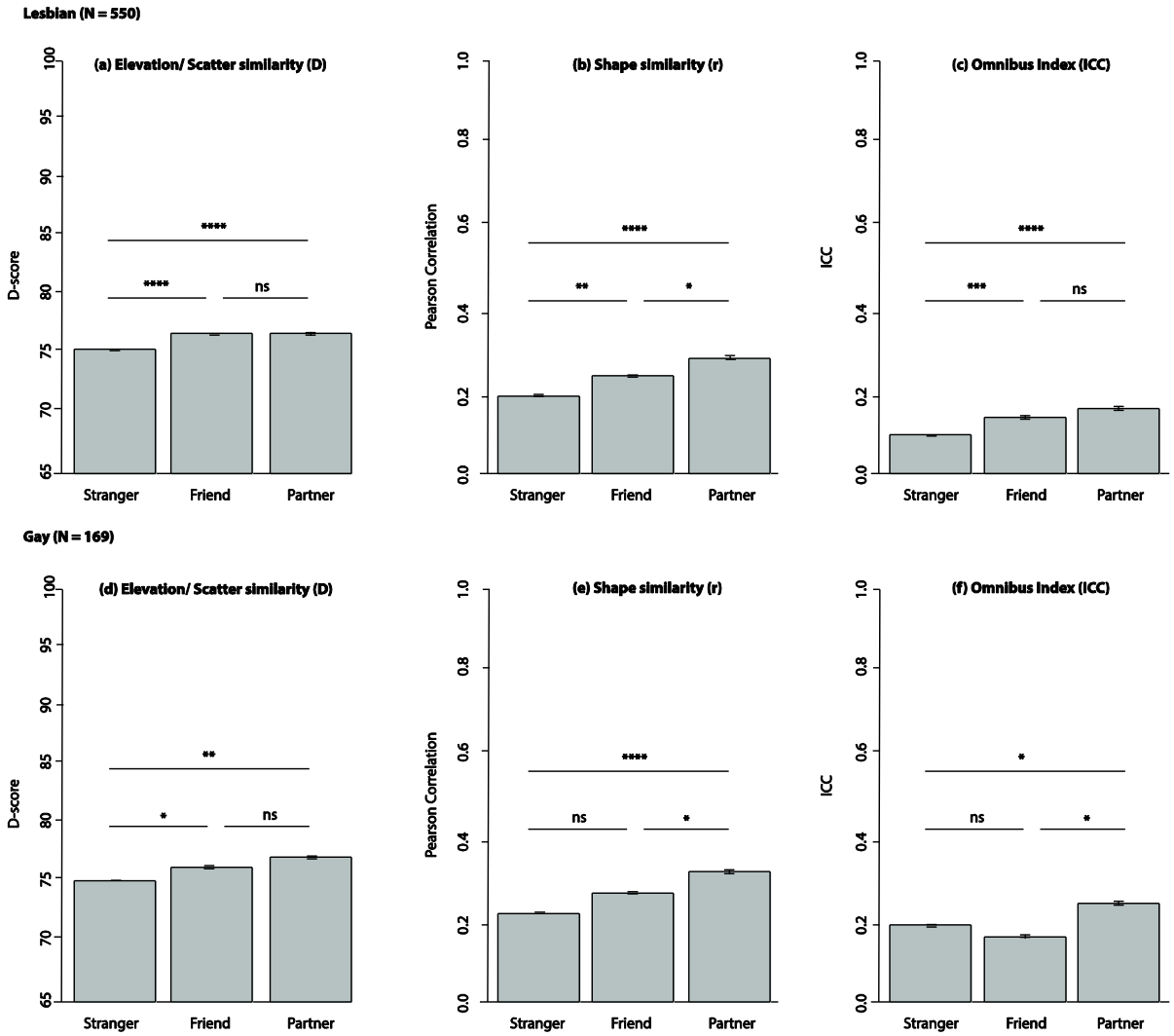

(a) Elevation/ Scatter similarity (D)
D-score
65
70
75
80
85
90
95
100
****
****
ns
Stranger
Friend
Partner
(b) Shape similarity (r)
Pearson Correlation
0.0
0.2
0.4
0.6
0.8
1.0
****
****
****
Stranger
Friend
Partner
(c) Omnibus Index (ICC)
ICC
0.0
0.2
0.4
0.6
0.8
1.0
****
****
****
Stranger
Friend
Partner

Figure 3


Lesbian (N = 550)
(a) Elevation/ Scatter similarity (D)
D-score
65
70
75
80
85
90
95
100
****
****
ns
Stranger
Friend
Partner
(b) Shape similarity (r)
Pearson Correlation
0.0
0.2
0.4
0.6
0.8
1.0
****
**
*
Stranger
Friend
Partner
(c) Omnibus Index (ICC)
ICC
0.0
0.2
0.4
0.6
0.8
1.0
****
***
ns
Stranger
Friend
Partner
Gay (N = 169)
(d) Elevation/ Scatter similarity (D)
D-score
65
70
75
80
85
90
95
100
**
*
ns
Stranger
Friend
Partner
(e) Shape similarity (r)
Pearson Correlation
0.0
0.2
0.4
0.6
0.8
1.0
****
ns
*
Stranger
Friend
Partner
(f) Omnibus Index (ICC)
ICC
0.0
0.2
0.4
0.6
0.8
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*
ns
*
Stranger
Friend
Partner

Table captions

Table 1. *Personality Traits of Homosexual Individuals*

Table 2. *Personality Traits of Lesbian Individuals*

Table 1

	Homosexual men		Heterosexual men				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
Openness	77.2	15.6	73.9	15.9	-2.67	186	0.008
Conscientiousness	58.2	19.4	61.6	18.9	2.20	185	0.03
Neuroticism	42.7	20.8	38.1	20.6	-2.77	185	.006
Agreeableness	62.8	17.8	62.3	18.0	-0.35	186	.72
Extraversion	63.6	22.3	62.8	20.8	-0.45	183	.66
			Heterosexual women				
Openness	77.2	15.6	73.0	16.4	-3.41	189	<.001
Conscientiousness	58.2	19.4	62.6	18.1	2.83	184	0.005
Neuroticism	42.7	20.8	48.3	20.4	3.43	186	<.001
Agreeableness	62.8	17.8	65.0	17.1	1.60	185	.11
Extraversion	63.6	22.3	62.0	20.7	-0.90	184	.37

Table 2

	Lesbian women		Heterosexual men				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
Openness	75.7	15.0	73.9	15.9	-2.58	768	0.01
Conscientiousness	56.88	17.8	61.6	18.9	5.72	768	<.001
Neuroticism	49.1	20.2	38.1	20.6	-11.80	749	<.001
Agreeableness	62.6	17.6	62.3	18.0	-0.30	752	.76
Extraversion	62.4	21.0	62.8	20.8	0.45	738	.65
			Heterosexual women				
Openness	75.7	15.0	73.0	16.4	-3.86	804	<.001
Conscientiousness	56.9	17.8	62.6	18.1	6.88	767	<.001
Neuroticism	49.1	20.2	48.3	20.4	-0.88	762	.38
Agreeableness	62.6	17.6	65.0	17.1	3.06	744	.002
Extraversion	62.4	21.0	62.0	20.7	-0.37	751	.71