The Impact of Mate Value in First and Subsequent Real-Life Romantic Encounters

Stefanie N. Wurst, Sarah Humberg, Mitja D. Back

University of Münster, Germany

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Author Note

We embrace the values of openness and transparency in science (Schönbrodt, Maier, Heene, & Zehetleitner, 2015). We therefore follow the 21 word solution (Simmons, Nelson, & Simonsohn, 2012) or refer to our project documentation (see <http://osf.io/nwvr3/>). We have furthermore published scripts for all data analyses reported in this manuscript and provide access to the data necessary to reproduce the reported results (see <http://osf.io/8utu8/>). The hypotheses and analyses of the present paper have been preregistered (see <http://osf.io/mu2wd/>).

Abstract

We provide a first systematic investigation of the most prominent hypotheses about the impact of mate value on interpersonal attraction in real-life early-stage romantic encounters. Using Response Surface Analysis, we simultaneously examined how (a) people's perception of their own mate value, (b) their perception of a potential partner's mate value, and (c) the interplay between the two mate values impact initial romantic attraction and selection as well as subsequent interpersonal outcomes after selection. Data came from the "Date me for Science" speed-dating study ($n = 398$), in which participants who mutually selected each other at the speed-dating event were followed up with 3 assessments in the 6 weeks after the event to assess subsequent outcomes. Participants' romantic attraction, likelihood of selecting, and subsequent interpersonal outcomes with a dating partner almost exclusively depended on their perception of their dating partner's mate value: the higher, the better. There was no evidence for the popular matching hypothesis, which states that people feel attracted to and select dating partners whom they perceive to have a mate value similar to their own. Implications of these findings for theory and research on the impact of mate value on romantic attraction and selection are discussed.

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Mate value—i.e., an individual's overall value to potential partners in the mating market—is a central construct in many theories on human mate selection and romantic relationship functioning (e.g., Buss, Goetz, Duntley, Asao, & Conroy-Beam, 2017; Eastwick, 2016; Eastwick & Hunt, 2014; Fisher, Cox, Bennett, & Gavric, 2008; Miller & Todd, 1998; Penke, Todd, Lenton, & Fasolo, 2008; Sela, Mogilski, Shackelford, Zeigler-Hill, & Fink, *in press*; Starratt, Weekes-Shackelford, & Shackelford, 2017). One of the most crucial questions about mate value is how it influences romantic attraction and partner choice. Two competing theoretical assumptions about this influence dominate the field: the idea that individuals feel attracted to and select potential partners who are similar to themselves in mate value versus the idea that individuals feel attracted to and select potential partners with a high mate value (e.g., Olderbak, Malter, Wolf, Jones, & Figueredo, 2017; Penke et al., 2008; Taylor, Fiore, Mendelsohn, & Cheshire, 2011; Van Straaten, Engels, Finkenauer, & Holland, 2009; see also Ellis & Kelley, 1999). Prior empirical examinations of these hypotheses have predominantly focused on specific aspects of mate value (especially physical attractiveness; e.g., Berscheid, Dion, Walster, & Walster, 1971; Curran & Lippold, 1975; Montoya, 2008; Van Straaten et al., 2009; Walster, Aronson, Abrahams, & Rottman, 1966), but only a few studies so far have investigated global mate value—and these few studies revealed mixed evidence regarding the two hypotheses (Back, Penke, et al., 2011; Lemay & Wolf, 2016; Olderbak et al., 2017; Taylor et al., 2011; Todd, Penke, Fasolo, & Lenton, 2007). Thus, in order to achieve a more comprehensive understanding of the impact of two dating partners' mate values on these dating partners' romantic attraction to each other, the present study provides a systematic examination of both hypotheses for global mate value in a real-life dating context. In addition, the present research takes the investigation of mate value one step further in that it not only examines the impact of mate value on initial dating decisions in first romantic encounters, but also longitudinally investigates the role of mate value on interpersonal

romantic outcomes in subsequent romantic encounters after a first dating decision has been made.

Mate Value and Romantic Outcomes in First Romantic Encounters

The literature contains two competing theoretical propositions about the impact of mate value on romantic attraction and dating decisions in first romantic encounters: The Matching Hypothesis and what we call the Main Effects Hypothesis.

The Matching Hypothesis

The *Matching Hypothesis* states that people feel more romantically attracted to and more likely select potential partners with a similar mate value to their own. This hypothesis has first been proposed by Walster et al. (1966) and has become one of the most popular assumptions in research on romantic attraction and mate choice and has inspired many theoretical considerations about the processes of human mate selection (e.g., Buss et al., 2017; Eastwick & Buck, 2014; Kavanagh, Robins, & Ellis, 2010; Miller & Todd, 1998; Penke et al., 2008; Taylor et al., 2011).

The following considerations underlie the Matching Hypothesis. It is proposed that people get to know their own mate value by interacting with the opposite sex and by comparing themselves with same-sex individuals. Once individuals have learned their own mate value, it is presumed that they will approach only potential partners of similar mate value to their own, as people supposedly (a) do not want a romantic partner with a noticeably lower mate value than their own, but (b) do not expect to be successful in attaining or retaining a romantic partner with a higher mate value than their own. Approaching only potential partners similar in mate value is thought to be adaptive behavior, because in doing so, people avoid romantic overtures with little prospect of success and can focus their mating efforts on more promising overtures (e.g., Figueredo, Sefcek, & Jones, 2006; Miller & Todd, 1998; Penke et al., 2008; Taylor et al., 2011).

Prior studies that have empirically tested the Matching Hypothesis have mainly focused on investigating specific aspects of mate value or other related constructs (see also Taylor et al., 2011). Past research for example has demonstrated that people feel more romantically attracted to and are more likely to go on a second date with potential partners who are similar to themselves in attitudes, interests, and values (e.g., Byrne, Ervin, & Lamberth, 1970; Sprecher & Duck, 1994). In addition, an extensive set of studies investigated the Matching Hypothesis for the construct of physical attractiveness (e.g., Asendorpf, Penke, & Back, 2011; Berscheid et al., 1971; Curran & Lippold, 1975; Eastwick & Finkel, 2008; Folkes, 1982; Huston, 1973; Kurzban & Weeden, 2005; Lee, Loewenstein, Ariely, Hong, & Young, 2008; Montoya, 2008; Olderbak et al., 2017; Van Straaten et al., 2009; Walster et al., 1966). The findings from this line of research have been mixed, with a few studies finding evidence for the Matching Hypothesis—such as increased romantic attraction, more approach behavior, and a higher likelihood of initiating or continuing contact with potential partners with similar physical attractiveness (Asendorpf et al., 2011; Folkes, 1982; Montoya, 2008; Taylor et al., 2011; Van Straaten et al., 2009). Most studies that investigated matching on physical attractiveness in initial romantic encounters, however, found no support for the Matching Hypothesis (e.g., Curran & Lippold, 1975; Eastwick & Finkel, 2008; Huston, 1973; Kurzban & Weeden, 2005; Lee et al., 2008; Olderbak et al., 2017; Walster et al., 1966; see also Kalick & Hamilton, 1986; Luo & Zhang, 2009; Taylor et al., 2011; Van Straaten et al., 2009).

However, although physical attractiveness is an important aspect of mate value, the construct of mate value comprises many more characteristics than the physical attractiveness of a person (such as status, intelligence, warmth/caring, self-assuredness, or faithfulness; e.g., Conroy-Beam & Buss, 2016b; Edlund & Sagarin, 2014; Ellis, Simpson, & Campbell, 2002; Fisher et al., 2008; Kirsner, Figueredo, & Jacobs, 2003; Miller & Todd, 1998). A recent study

furthermore revealed differential effects of physical attractiveness and of global mate value on romantic attraction (Olderbak et al., 2017). Thus, findings from research on physical attractiveness (or other related constructs) cannot automatically be generalized to hold for the broader construct of mate value as well. Empirical studies examining the impact of global mate value on romantic attraction or dating decisions are rare, though. We know of only three studies that included investigations of the Matching Hypothesis for global mate value in real-life dating situations, and these studies yielded mixed evidence. Whereas Todd et al. (2007) did not find evidence that matching on mate value increased participants' likelihood of choosing a potential partner in a speed-dating situation, Back, Penke, et al. (2011) found that participants of a speed-dating event were more likely to flirt with each other if they were more closely matched on mate value. In addition, Taylor et al. (2011, Study 4) showed that users of an online dating platform were more likely to communicate with opposite-sex users who had a similar mate value to their own. Thus, although the Matching Hypothesis for global mate value is one of the most popular theoretical assumptions in research on dating and partner choice, which is widely accepted and often regarded as well-established (see also Taylor et al., 2011), it has only rarely been directly empirically tested, and the few existing empirical findings have not been consistent.

The Main Effects Hypothesis

The second theoretical assumption about the impact of mate value on romantic attraction and dating decisions in first romantic encounters is what we call the *Main Effects Hypothesis*. The first part of this hypothesis states that a person feels more romantically attracted to and more likely selects a potential partner, the higher the potential partner's mate value is—regardless of the person's own mate value (i.e., a the-higher-the-better effect; e.g., Eastwick & Finkel, 2008; Kalick & Hamilton, 1986; Olderbak et al., 2017; Taylor et al., 2011; Van Straaten et al., 2009; see also Figueredo et al., 2006; Penke et al., 2008). This

supposition was proposed as a consequence of the findings from studies on physical attractiveness that did not find support for the Matching Hypothesis. Almost all of these studies instead found a positive main effect of a potential partner's physical attractiveness: The higher a potential partner's physical attractiveness, the higher were participants' romantic attraction, interest in another date, and likelihood of initiating contact with this potential partner (e.g., Berscheid et al., 1971; Curran & Lippold, 1975; Eastwick & Finkel, 2008; Fletcher, Kerr, Li, & Valentine, 2014; Hitsch, Hortaçsu, & Ariely, 2005; Huston, 1973; Kurzban & Weeden, 2005; Lee et al., 2008; Luo & Zhang, 2009; Olderbak et al., 2017; Stroebe, Insko, Thompson, & Layton, 1971; Walster et al., 1966; see also Asendorpf et al., 2011; Montoya, 2008). However, as deduced above, the crucial question is whether these findings also hold for global mate value. To our knowledge, only one study so far has included an investigation of potential main effects of mate value on romantic attraction or dating decisions in a real-life dating context: Back, Penke, et al. (2011) found that the likelihood of choosing a potential partner in a speed-dating context was higher, the higher the potential partner's mate value.

Beyond this positive main effect of the potential partner's mate value on a person's romantic attraction, results from studies examining the impact of physical attractiveness or other desirable characteristics on romantic attraction have yielded evidence that there might also be a second main effect: Several studies have shown that the higher a person's own physical attractiveness (or level of other desirable characteristics), the lower was this person's romantic attraction to potential partners in general (e.g., Asendorpf et al., 2011; Kurzban & Weeden, 2005; Lee et al., 2008; Montoya, 2008; Walster et al., 1966). Most important, the only study that examined main effects of mate value (Back, Penke, et al., 2011) also found this choosiness effect: The higher participants' own mate value, the less likely they were to choose to exchange contact information with potential partners in a speed-dating context. We

therefore conclude that the Main Effects Hypothesis might best be conceptualized as comprising two main effects: a positive main effect of a potential partner's mate value (which we will call *the-higher-the-better effect*) and a negative main effect of a person's own mate value (which we will call *choosiness effect*) on a person's romantic attraction to a potential partner. Thus, in the remainder of this article, when speaking of the Main Effects Hypothesis, we refer to both of these main effects.

Systematically Investigating the two Hypotheses

Taken together, thus, there are two competing hypotheses regarding the impact of mate value on romantic attraction and dating decisions in first romantic encounters: the Matching Hypothesis and the Main Effects Hypothesis. Although empirical research on the impact of mate value has been scarce, past studies have yielded at least some evidence for both hypotheses. These studies, however, have left unclear which of the two hypotheses (if any) best describes the reality of romantic attraction and dating decisions in initial romantic encounters. Research would therefore profit from a systematic examination of both hypotheses in a single study.

Recently, Olderbak et al. (2017) presented the first study to systematically investigate both the Matching Hypothesis and the Main Effects Hypothesis for mate value in a nondating context. In this study, participants rated self-introductory videos of same-sex and opposite-sex others on several aspects, including participants' perception of the target's mate value and participants' romantic attraction to the target. Regarding the construct of mate value, Olderbak et al. found no support for either the Matching Hypothesis or for any of the two main effects comprising the Main Effects Hypothesis. These findings stand in contrast to the prior findings on mate value reported above, which yielded support for either hypothesis. There is, however, one crucial difference between the study by Olderbak et al. and the prior studies on the impact of mate value on romantic attraction: Whereas findings that yielded

support for either of the two hypotheses were all obtained in real-life dating contexts with real-life consequences for the participants, the study by Olderbak et al. did not implement such a context. Past research on romantic attraction processes has repeatedly demonstrated differing findings between real-life dating contexts and hypothetical contexts such as the one used in Olderbak et al. (e.g., Eastwick, Hunt, & Neff, 2013; Eastwick, Luchies, Finkel, & Hunt, 2014; Reis, Maniaci, Caprariello, Eastwick, & Finkel, 2011; Taylor et al., 2011). An impact of mate value on romantic evaluations might therefore be present only in real-life dating contexts. Thus, to clarify which of the two proposed hypotheses (if any) best describes the reality of romantic attraction and dating decisions in initial romantic encounters, a systematic examination of both hypotheses in a real-life dating context is needed. The present research aims to fill this gap by systematically investigating both hypotheses in a real-life speed-dating context.

In the present research, we also investigated an important potential factor of influence: the kind of romantic attraction outcome assessed. Past studies that investigated the present hypotheses for physical attractiveness (rather than for global mate value) indicated that the amount of bindingness of the assessed romantic attraction measure might influence which of the hypotheses is supported by the data (Berscheid et al., 1971; Taylor et al., 2011; Van Straaten et al., 2009): The higher the bindingness of the assessed romantic attraction measure (i.e., when assessing measures such as actual dating decisions, romantically interested approach behaviors, or the perceived likelihood of entering a long-term romantic relationship with a potential partner), the more likely the Matching Hypothesis was supported by the data; whereas the less binding the attraction measure was (i.e., when assessing measures such as feeling romantically attracted or being interested in dating a potential partner), the more likely the Main Effects Hypothesis was supported by the data. These findings have been interpreted as indicating that probably all people desire potential partners high in physical

attractiveness, but in the end do approach only potential partners who are similar to themselves in physical attractiveness (e.g., Berscheid et al., 1971; Van Straaten et al., 2009). As corresponding mechanisms have also been proposed for global mate value (e.g., Figueredo et al., 2006; Penke et al., 2008), the present research included different operationalizations of romantic attraction that systematically varied in bindingness (from feeling attracted to a potential partner to actually choosing a potential partner).

Finally, we would like to point out that for examining the impact of a potential partner's mate value on a person's romantic attraction to this potential partner, it is important to assess the person's *subjective* perception of the potential partner's mate value (rather than a more objective measure of the potential partner's mate value), because a person's romantic attraction to a potential partner should first and foremost be influenced by the way the person *perceives* the potential partner's mate value (e.g., Byrne et al., 1970; Eastwick & Finkel, 2008; Fletcher et al., 2014; Tidwell, Eastwick, & Finkel, 2013; Walster et al., 1966; see also Eastwick et al., 2014; Montoya, Horton, & Kirchner, 2008). In the present research, we therefore investigated participants' subjective perceptions of potential partners' mate values.

To sum up, the present research systematically tested the Matching Hypothesis and the Main Effects Hypothesis for the construct of mate value in real-life first romantic encounters, using subjective perceptions of potential partners' mate values and romantic outcome measures that differed in bindingness. We expected evidence to shift from supporting the Main Effects Hypothesis to supporting the Matching Hypothesis with increasing bindingness of the romantic attraction outcomes.

Mate Value and Romantic Interpersonal Outcomes in Subsequent Romantic Encounters

A further aspect of the role of mate value in the dating process that has remained unclear so far is the impact of mate value *after* an initial dating decision has been made in a

first romantic encounter. That is, what is the role of mate value in the phase in which two potential partners are, at least for the time being, mutually interested in one another? The theoretical literature on mate value supposes that the relative mate value of the two dating partners should continue to be important for interpersonal romantic outcomes even after a first dating decision has been made (e.g., Buss et al., 2017; Eastwick, 2016). It is presumed that this continuing impact of mate value takes on the form described in the Matching Hypothesis: The more closely two dating partners are matched on mate value, the more positive both partners' romantic interpersonal outcomes (e.g., perceived relationship quality, frequency of contact, and experienced romantic attraction) are supposed to be (e.g., see Conroy-Beam et al., 2016; Phillips, 2010; Redlick, 2016; Sidelinger & Booth-Butterfield, 2007). The reasoning underlying this proposition is that the higher the discrepancy between the dating partners' mate values, the higher the probability that at least one partner might be dissatisfied with her or his dating partner's mate value. This holds true regardless of the mechanisms that guided the first dating decision (i.e., even if the first dating decision was guided by the desire to obtain a partner as high as possible on mate value as proposed in the Main Effects Hypothesis, one of the two dating partners will always be somewhat dissatisfied with her/his partner's mate value if the two dating partners' mate values diverge). And as dyadic interactions such as romantic dates depend on both partners, interpersonal outcomes such as the likelihood of having another date and the quality of the date for both partners are thought to be reduced if one dating partner is somewhat dissatisfied (e.g., Figueredo et al., 2006; Penke et al., 2008).

However, we know of no existing direct empirical evidence that could either support or contradict the hypothesis that interpersonal outcomes in subsequent romantic encounters between dating partners after an initial dating decision might be higher if the dating partners matched on mate value. Past research has used indirect evidence to support this claim: the

high correspondence between the mate values of romantic partners in established romantic couples (Conroy-Beam & Buss, 2016a; Figueredo et al., 2006, 2015; Figueredo & Wolf, 2009; Gomula, Nowak-Szczepanska, & Danel, 2014; Starratt & Shackelford, 2012). However, direct empirical evidence is needed (i.e., investigations of interpersonal outcomes between dating partners after an initial dating decision) in order to be able to gauge whether the theoretical claim is justified. Researchers have therefore called for longitudinal studies that investigate the impact of mate value beyond the first dating decision (Taylor et al., 2011). The present research answers this call by longitudinally tracking dating dyads and repeatedly assessing their romantic interpersonal outcomes in the weeks following a first dating decision at a speed-dating event. We expected the Matching Hypothesis to hold for these interpersonal outcomes—that is, we expected romantic interpersonal outcomes after a first dating decision to be more positive the more closely the perceived mate value of a person’s dating partner matched the person’s own mate value.

Response Surface Analysis

Matching hypotheses such as the ones presented in the present article have been statistically tested in many different ways (for overviews of some of these methods, see Edwards, 1994, 2001). Many of these methodologies, however, are associated with known drawbacks. For example, when matching is operationalized as a compound measure (such as a difference score, a profile correlation, or regression residuals), the effect of this compound measure on an outcome is inevitably confounded with the main effects of the variables that comprise the compound measure. This renders it impossible to determine whether an effect of the compound measure on an outcome indeed reflects a matching effect or merely reflects main effects of the compound measure’s constituent parts (Edwards, 1994, 2001; Edwards & Parry, 1993; Schönbrodt, 2016b).

A methodology for examining matching hypotheses that avoids these drawbacks, is Response Surface Analysis (RSA; Cohen, Nahum-Shani, & Doyeh, 2010; Edwards, 2002, 2007; Nestler, Grimm, & Schönbrodt, 2015; Schönbrodt, 2016b). In RSA, the effect of two predictor variables (i.e., a potential partner's mate value and one's own mate value) and the effect of the interplay between these variables on an outcome measure are modeled by a polynomial regression in the form:

$$\text{Outcome} = b_0 + b_1 * \text{partner's mate value} + b_2 * \text{own mate value} + b_3 * (\text{partner's mate value})^2 + b_4 * \text{partner's mate value} * \text{own mate value} + b_5 * (\text{own mate value})^2 + \text{Error} \quad (1)$$

The result of this regression is then plotted as a three-dimensional surface that can be interpreted easily.

RSA is a versatile tool that allows researchers to examine a multitude of different hypotheses. Most important, RSA allows researchers to examine both the effect of the match between the two predictors on an outcome and the main effects of the two predictors on an outcome without confounding those two kinds of effects, and thus allows researchers to test both the Matching Hypothesis and the Main Effects Hypothesis. To illustrate this point, first recall the Matching Hypothesis for initial romantic encounters, which states that romantic attraction to a potential partner is higher, the more closely the perceived mate value of the potential partner matches one's own mate value. Such an effect would create a response surface as presented in Figure 1a. The line labeled *a* on the floor of the cube in Figure 1a represents the *line of congruence* (Schönbrodt, 2016b), where the perceived mate value of a potential partner (represented on the x-axis) exactly matches one's own mate value (represented on the y-axis). If the Matching Hypothesis holds, romantic attraction (depicted on the z-axis in Figure 1a) should be highest above this line of congruence. And this is

exactly what is represented by the surface in Figure 1a: The surface represents the values of the outcome variable (i.e., romantic attraction) at all possible combinations of predictor values. The surface, and thus romantic attraction, reaches its maximum when perceived mate value of partner and own mate value match perfectly (i.e., above the line of congruence) and drops with increasing discrepancy between perceived partner's mate value and own mate value (i.e., when moving away from the line of congruence in either direction along the line labeled *b* in Figure 1a). Thus, Figure 1a presents the RSA representation of the Matching Hypothesis in initial romantic encounters. The matching effect expected in subsequent romantic encounters (i.e., more positive romantic interpersonal outcomes the closer the perceived mate value of one's dating partner matches one's own mate value) would create an analogous shape of the surface (see Figure 1c), with the only difference being that the surface represents romantic interpersonal outcomes instead of romantic attraction. Thus, Figure 1c presents the RSA representation of the Matching Hypothesis in subsequent romantic encounters.

Now recall the Main Effects Hypothesis for initial romantic encounters, which proposes a positive linear main effect of the perceived mate value of a potential partner (the higher the perceived mate value of a potential partner, the higher one's romantic attraction to this potential partner, regardless of one's own mate value) and a negative linear main effect of one's own mate value (the higher one's own mate value, the lower one's romantic attraction in general). These effects would create a response surface as presented in Figure 1b. The surface in Figure 1b again represents the values of romantic attraction at all possible combinations of perceived mate value of partner and own mate value. As the perceived mate value of the potential partner increases (i.e., when moving from left to right along the line labeled *c* or along any other line parallel to this line in Figure 1b), the surface, and thus romantic attraction, linearly rises, thus representing the positive main effect of the perceived

mate value of the potential partner (i.e., the the-higher-the-better effect). Correspondingly, when own mate value increases (i.e., when moving from right to left along the line labeled d or along any other line parallel to this line in Figure 1b), the surface, and thus romantic attraction, linearly decreases, thus representing the negative main effect of own mate value (i.e., the choosiness effect). Figure 1b is therefore the RSA representation of the Main Effects Hypothesis in initial romantic encounters.

For all RSA representations of our hypotheses, we can test whether they fit actual data (Schönbrodt, 2016b), which allows us to statistically test our hypotheses (as will be described in the Analyses section). Thus, all hypotheses in the present article can be modeled and tested with RSA. We therefore chose the RSA methodology to examine our hypotheses.

The Present Research

The aim of the present research was to perform the first systematic test of the Matching Hypothesis and the Main Effects Hypothesis for global mate value in a real-life dating situation. In addition, the present article is the first to examine the impact of dating partners' mate values on interpersonal outcomes in subsequent romantic encounters following a first, mutually positive dating decision. To do so, we used data from the “Date me for Science Study”, a large speed-dating study with several follow-up assessments (Wurst & Back, 2016; see <http://osf.io/nwvr3/>).¹ In this study, heterosexual participants had brief first dates with opposite-sex participants in a dating laboratory. Participants reported their own mate value and, directly after each speed-date, indicated their perception of each dating partner's mate value as well as their romantic attraction to each dating partner on several different measures with different degrees of bindingness (i.e., feeling attracted, interest in having another date, long-term romantic interest, and actual romantic choice). As is common for speed-dating events, participants who mutually chose each other (i.e., whose first dating decision was mutually positive) were given each other's contact information and thus could contact each

other again after the speed-dating event. The participants whose first dating decision was mutually positive were then followed up repeatedly in the 6 weeks after their first date at the speed-dating event, to question them about their interpersonal outcomes in all subsequent romantic encounters that took place between them and their chosen speed-dating partners after the speed-dating event. The present research thus longitudinally examined a real-life dating context with real-life consequences for the participants.

We tested two competing hypotheses for romantic attraction in a first romantic encounter (i.e., at the speed-dating event) as described above and as depicted in Figures 1a and 1b: (a) the *Matching Hypothesis*, which states that romantic attraction to a potential partner should be stronger the closer the perceived mate value of the potential partner matches one's own mate value, and (b) the *Main Effects Hypothesis*, which states that romantic attraction to a potential partner should be stronger the higher the mate value of the potential partner is perceived to be (regardless of one's own mate value; i.e., the the-higher-the-better effect), and romantic attraction to a potential partner should be weaker the higher one's own mate value is (regardless of the potential partner's mate value; i.e., the choosiness effect). As deduced above, we expected evidence to shift from supporting the Main Effects Hypothesis at low bindingness of the romantic attraction measure to supporting the Matching Hypothesis at high bindingness of the romantic attraction measure. To this end, the order of the bindingness of the four investigated romantic attraction measures was assumed to be the following (from lowest to highest bindingness): feeling attracted < interest in having another date < long-term romantic interest < romantic choice.

For romantic interpersonal outcomes in subsequent romantic encounters (i.e., following the first, mutually positive dating decision at the speed-dating event), we expected the *Matching Hypothesis* to hold as depicted in Figure 1c and as deduced above. Thus, we expected individuals to report more positive romantic interpersonal outcomes in subsequent

encounters with a dating partner the closer their perception of their dating partner's mate value matched their own mate value.

We preregistered the hypotheses and analyses from the present paper after we had completed the data collection but before we conducted any analyses concerning the present research questions. The preregistration can be found at <http://osf.io/mu2wd/> . Data and analysis code from the present paper can be accessed at <http://osf.io/8utu8/> . Please also note that this paper comes with online supplemental materials, which can also be accessed at <http://osf.io/8utu8/> . The online supplemental materials also contain an erratum to the preregistration, as the preregistration contained two minor errors (which did not affect the content of our hypotheses or the analyses to be conducted).

Method

Here, we report all measures from the “Date me for Science Study” that are relevant for the present research, all manipulations, all data exclusions (if any), and how we determined our sample size (Simmons et al., 2012). Please see the study's codebook at <http://osf.io/nwvr3/> for a list of all measures obtained in the study and for further details about the procedure.

Participants

A total of 400 heterosexual singles who were currently looking for a romantic partner took part in the speed-dating events of the “Date me for Science Study” in Münster, Germany. The sample size represents the maximum number of participants we could recruit during the time allocated for data collection (April 2015 – December 2015). Two participants later retracted their data, leaving us with data from 398 participants (200 female; age: 18-28 years, $M = 22.88$, $SD = 2.63$) for the present analyses. To be eligible to take part in the study, participants had to self-identify as being mainly heterosexual, had to be between 18 and 28 years of age, and had to have (at least) a university entrance diploma (or currently be about to

acquire one). We included the latter two criteria because—even though romantic relationships can be very diverse—a similar age and a comparable education level are often crucial factors when choosing a romantic partner (e.g., Hitsch et al., 2005; Kurzban & Weeden, 2007; Watson et al., 2004). We recruited participants via online social networks, advertisements in a local brochure and a local radio station, university mailing lists, bulletin-board flyers, and announcements in lectures. To minimize the chances of prior acquaintance between participants, we applied a broad sampling strategy by recruiting participants from a wide range of different majors. Most participants (91%) were therefore students. We did not offer participants any compensation for their participation in the speed-dating event except for the chance to meet a romantic partner.

Procedure

We hosted a total of 42 speed-dating events. The number of participants per event ranged from seven to ten ($M = 9.52$, $SD = 0.74$), with a maximum of five participants per sex. All speed-dating events took place in our dating laboratory and started at 6 pm. During the entire event (except for the actual speed-dates), women and men were kept separated, thus ensuring that each participant saw and heard each opposite-sex participant for the first time at the moment when their respective speed-date started. To this end, women and men arrived at different-street entrances of the building, were instructed in different rooms, and were then seated in separated cubicles where they filled out a start-of-event questionnaire that assessed their own current mate value.

Afterwards, the speed-dating procedure began. In this procedure, each participant had 3-minute speed-dates with each opposite-sex participant present and—immediately after each speed-date—filled out a post-date questionnaire about the respective date. It is important to note that at our speed-dating events—in contrast to the usual speed-dating procedure—only one speed-date took place at a time. That is, at any given time, only two participants were

involved in a speed-date in a separate dating room, while all other participants were currently seated in their cubicles and filling out the post-date questionnaire about their previous date. This procedure created an exclusive dyadic atmosphere during the speed-dates, as the two dating participants were alone in the dating room. During their dates in the dating room, participants sat on a couch at a 90° angle. All speed-dates were videotaped. After each date, participants returned to their cubicles and filled out the post-date questionnaire, which assessed their perception of their recent speed-dating partner's mate value as well as their romantic attraction to their dating partner on several different measures. These romantic attraction measures also included the typical speed-dating choice question of whether participants wanted to exchange contact information with their recent speed-dating partner. Dating dyads in which both dating partners agreed to this question (i.e., whose first dating decision was mutually positive) formed a *match*. At the end of the speed-dating event, when all speed-dates had taken place, participants filled out an end-of-event questionnaire, which again assessed participants' current mate value. The entire speed-dating event lasted about three hours.

Three days after each speed-dating event, we e-mailed participants the contact information of their match partner(s). Participants who had at least one match partner were then followed-up with three online questionnaires—at 10, 20, and 40 days after we sent the contact information. The follow-up questionnaires assessed several kinds of romantic interpersonal outcomes between match partners in the weeks following the speed-dating event. The entire “Date me for Science Study” was approved by the local ethical committee, and all participants gave written consent to participate in the study.

Measures

The following measures of the “Date me for Science Study” were used in the present analyses. Please see the study’s codebook at <http://osf.io/nwvr3/> for a list of all measures obtained in the study.

Perceived mate value of partner. Directly after each speed-date, participants indicated their subjective perception of their dating partner’s mate value on two items (“Most people of my sex would say that this person is a desirable partner for a long-term committed romantic relationship”; “This person is successful with the opposite sex”). Both items were answered on a 7-point scale ranging from 1 = *do not agree at all* to 7 = *agree completely*. We aggregated across the two items to form a single score of *perceived mate value of partner* ($\alpha = .87$).

Own mate value. Participants reported their own current mate value at the beginning and at the end of the speed-dating event (“Right now, I feel I am a desirable dating partner”) on a 7-point scale ranging from 1 = *do not agree at all* to 7 = *agree completely*. We averaged across the two ratings to form a single score of participants’ current *own mate value* ($\alpha = .74$). We examined participants’ current own mate value during the speed-dating event (rather than mate value measured as a trait), as mate value is subject to fluctuations (Buss et al., 2017; Kavanagh et al., 2010; Penke et al., 2008) and we suppose that participants’ romantic attraction to their dating partners in the speed-dating event was first and foremost influenced by the currently experienced degree of mate value (rather than by the general trait).

Romantic attraction at the speed-dating event. We investigated four different measures of participants’ romantic attraction to their dating partners that were obtained directly after each speed-date. The four measures differed in their degree of bindingness. The measures (in ascending order of bindingness) were: *feeling attracted* to the dating partner (“I think this person is romantically appealing”), *interest in another date* with the dating partner

(“I would be interested in having another date with this person”), *long-term romantic interest*² in the dating partner (“To me, this person might be a partner for a long-term committed romantic relationship”), and *romantic choice* concerning the dating partner (“I would like to exchange contact information with this person”). The first three items were answered on a 7-point scale (1 = *do not agree at all* to 7 = *agree completely*), the romantic choice item was dichotomous (0 = *no*, 1 = *yes*). We computed separate analyses for each of the four romantic attraction measures.

Romantic interpersonal outcomes in subsequent romantic encounters. We investigated the following three romantic interpersonal outcome measures that were obtained in the follow-up assessments. Again, we conducted separate analyses for each of the three measures, but we did not expect different findings for the three different measures.

Contact frequency. At each follow-up, participants reported how frequently they had engaged in three different kinds of contact (written, phone, and personal) with each of their match partners since the last assessment. Participants answered all items on an 8-point scale (Follow-Ups 1 and 2: 1 = *never*, 2 = *only once*, 3 = *only on one day, but several times on that day*, 4 = *on 2 days*, 5 = *on 3-5 days (i.e., about every 2nd or 3rd day)*, 6 = *on 6-8 days*, 7 = *about every day*, 8 = *several times every day*; Follow-Up 3:³ 1 = *never*, 2 = *only once*, 3 = *only on one day, but several times on that day*, 4 = *on 2-3 days*, 5 = *on 4-10 days (i.e., about every 2nd or 3rd day)*, 6 = *on 11-18 days*, 7 = *about every day*, 8 = *several times every day*). For each participant, we computed a single measure of post-speed-date *contact frequency* with each of her/his match partners, by first averaging across the three contact items within each follow-up⁴ and then averaging these scores across all follow-ups ($\alpha = .90$).

Romantic attraction. At each follow-up, participants completed an item on their current romantic attraction to each of their match partners (“I think [name] is romantically appealing”; answered on a 7-point-scale from 1 = *do not agree at all* to 7 = *agree*

completely). For each participant, we computed a single measure of subsequent-encounter *romantic attraction* to each of her/his match partners by averaging across the three follow-ups ($\alpha = .86$).

Relationship quality. At each follow-up, we questioned participants about the quality of their current relationship with each of their match partners with whom they had engaged in contact at least once after the speed-dating event. We measured relationship quality with five items (“How much do you trust [name]?”; “How close is [name] to you?”; “How familiar are you and [name]?”; “I invest a lot (e.g., time/little tokens/gifts) in my contact with [name]”; “I feel comfortable opening up to [name] and disclosing personal information”). All items were answered on 7-point scales (trust: 1 = *not at all* to 7 = *completely*; closeness: 1 = *not at all close* to 7 = *extremely close*; familiarity: 1 = *not at all familiar* to 7 = *extremely familiar*; investment and self-disclosure: 1 = *do not agree at all* to 7 = *agree completely*). For each participant, we computed a single measure of subsequent-encounter *relationship quality* with each of her/his match partners, by first averaging across the five items within each follow-up (Follow-Up 1: $\alpha = .90$, Follow-Up 2: $\alpha = .94$, Follow-Up 3: $\alpha = .93$) and then averaging these scores across the three follow-ups ($\alpha = .89$).

Analyses

To investigate the present hypotheses, we used RSAs and implemented a classic model-testing approach (for an equivalent analysis strategy, see Wurst, Humberg, & Back, 2017).

The present hypotheses can be represented by two specific RSA models as illustrated in Figure 1 (Figures 1a and 1c depict the same RSA model). In the following, we will call these models the *Matching Model* (Figures 1a and 1c) and the *Main Effects Model* (Figure 1b). The specific shapes of the surfaces in these two models are obtained by imposing specific constraints on parameters b_1 to b_5 in Equation 1. Each of these two specific RSA models can

then be tested for whether it fits actual data, which enabled us to statistically test the present hypotheses (Schönbrodt, 2016b).

Constraints imposed on the two models to be tested. For the response surface to take on the shape of the Matching Model as depicted in Figures 1a and 1c, we had to impose the following constraints on the parameters in Equation 1: (1) $b_3 + b_4 + b_5 = 0$, (2) $b_3 - b_4 + b_5 < 0$, (3) $b_1 = b_2$, (4) $b_3 = b_5$. The term $b_3 + b_4 + b_5$ from the first constraint is a common parameter in RSA called “ a_2 ”, which describes the form of the surface’s curvature above the line of congruence (i.e., above the line labeled a in Figure 1; e.g., Cohen et al., 2010; Shanock, Baran, Gentry, Pattison, & Heggstad, 2010). By constraining this term to be zero, we did not allow the surface to be curved along the line of congruence. The term $b_3 - b_4 + b_5$ from the second constraint is also a common parameter in RSA called “ a_4 ”, which describes the form of the surface’s curvature above the so-called line of incongruence (i.e., the line labeled b in Figure 1; e.g., Cohen et al., 2010; Shanock et al., 2010). By constraining this term to be negative, we imposed the expected inverted u-shaped form of the surface along the line of incongruence (see Figures 1a and 1c). Finally, the third and fourth constraints imposed a symmetry that made the ridge of the surface lie above the line of congruence as expected in the Matching Hypothesis (Schönbrodt, 2016b).⁵

For the response surface to take on the shape of the Main Effects Model as depicted in Figure 1b, we had to impose the following constraints on the parameters in Equation 1: $b_1 > 0$, $b_2 < 0$, $b_3 = 0$, $b_4 = 0$, $b_5 = 0$. That is, as we wanted to model only linear effects, we constrained the interaction term (i.e., b_4) and the quadratic terms (i.e., b_3 and b_5) in the RSA regression equation to be zero. Constraining b_1 to be positive and b_2 to be negative then imposed the linear positive main effect of perceived mate value of partner (i.e., the the-higher-the-better effect) and the linear negative main effect of own mate value (i.e., the choosiness effect) expected by the Main Effects Hypothesis.

Strategy of analysis. For each of our seven romantic outcome measures, we conducted a separate RSA. Into each RSA, we entered perceived partner's mate value and own mate value as predictors. We standardized both predictors (using the pooled mean and standard deviation of the two predictors in order to retain the meaning of the numerical distance between the two predictors, which is a prerequisite for testing matching hypotheses in an RSA; see Schönbrodt, 2016b). We also standardized each outcome measure—except for the dichotomous romantic choice outcome. The dichotomous romantic choice outcome was transformed by applying a *probit* link function in the respective RSA. In the four RSAs for the romantic attraction measures at the speed-dating event, we tested both the Matching Model and the Main Effects Model. In the three RSAs for the romantic interpersonal outcome measures in subsequent encounters, we tested the Matching Model. We tested the models by applying the following analytic strategy for each RSA (see also Wurst, Humberg, et al., 2017):

In Step 1, we first examined whether there was any relation at all between the predictors and the outcome measure. To do so, we tested whether the full model (i.e., the model in which all parameters in Equation 1 are estimated freely and in which the response surface can take on a variety of possible shapes) explained significant variance in the data. If the full model did not explain significant variance in the data—thus indicating that there was no detectable relation at all between the predictors and the outcome measure—the analysis stopped at this point.

In Step 2, we tested whether the hypothesized model(s) (i.e., the Matching Model and the Main Effects Model in the four RSAs for examining the romantic attraction outcomes at the speed-dating event, and the Matching Model in the three RSAs for examining the subsequent encounter outcomes) fit the data. To do so, we tested for each hypothesized model whether it had a significantly better fit than the null model (i.e., intercept only model) and

whether it had no significantly worse fit than the full model, using χ^2 -difference tests. The test against the full model ensured that there was no better explanation for the data than the hypothesized model (see e.g., Edwards, 2002). We therefore regarded each hypothesized model as fitting the data only if *both* conditions were satisfied. If all hypothesized models in an RSA did not fit the data according to these two criteria, the analysis stopped at this point.

In Step 3, we inspected the crucial estimated parameters of each hypothesized model that was found to fit the data in Step 2. We did so to ensure that the hypothesized model indeed described the proposed effect. This was necessary because a model can fit the data although its crucial estimated parameters may not be statistically significant—in which case the model would not describe the proposed effect and thus could not be interpreted as evidence in support of the proposed hypothesis. For the Matching Model, this meant that the estimated a_4 parameter (i.e., $b_3 - b_4 + b_5$) in the data had to be significantly negative (see also Schönbrodt, 2016b). For the Main Effects Model, this meant that the estimated b_1 parameter had to be significantly positive, and the estimated b_2 parameter had to be significantly negative. Only then was the proposed hypothesis confirmed.

If we found no support for any of our hypotheses in Steps 2 and 3 in an analysis (i.e., if neither the Matching Model nor the Main Effects Model was supported for a measure of romantic attraction at the speed-dating event, or if the Matching Model was not supported for a subsequent-encounter measure), but the full model for the respective outcome measure explained significant variance (as tested in Step 1), we conducted exploratory analyses to determine which effects were revealed by the data. To do so, we examined the full model for the respective outcome measure and inspected its regression coefficients b_1 to b_5 from Equation 1 and its RSA parameter a_4 , which may indicate a possible effect of mate-value matching (e.g., Cohen et al., 2010).

Across all analyses, we used a significance level of $\alpha = .01$ (with p -values between .01 and .05 being interpreted as marginally significant). We did so for the following reason. The present data had a cross-classified multilevel structure (as each participant rated multiple dating partners at the speed-dating event, and each dating partner was rated by multiple participants). However, the number of nested observations within participants and within dating partners was too small to compute multilevel RSAs (as the number of nested observations was a maximum of five per participant/dating partner because each participant/dating partner had a maximum of five speed-dates, and this was not enough to estimate the five free parameters of a multilevel RSA per participant/dating partner). Thus, as we could not account for our nested data structure by computing multilevel RSAs, our analyses contained a larger number of independent cases than there actually were. To account for that, we adjusted the significance level.

We would like to conclude with a remark about the sample sizes in our analyses. Each observation entered into the RSAs consisted of the following data triplet: rating by a given participant about a given dating partner's mate value, the participant's own mate value, and the participant's rating of the respective romantic outcome measure with the given dating partner. As each participant rated up to five dating partners, thus, up to five observations per participant were entered into the RSAs. This resulted in actual sample sizes in our analyses that were much larger than the number of participants.

Please also note the selected nature of the sample that provided data for the subsequent encounter outcomes. As in the subsequent-encounter analyses we were interested in romantic interpersonal outcomes after a first mutually positive dating decision had been made, only participants who had at least one match at the speed-dating event took part in the follow-up assessments and then reported only on their match partners. As such a selection within a sample harbors the risk of reduced variances within predictor and outcome measures (which

in turn might reduce the predictive power of our analyses), we also inspected the variances within our measures in the subsequent-encounter analyses.

To conduct the RSA analyses in the present paper, we used an adapted version of the *RSA* package for R (Schönbrodt, 2016a). We published data and analysis code for reproducing the results presented in the present paper at <http://osf.io/8utu8/>.

Results

An overview of the descriptive statistics for all measures used in the present article is presented in Table 1, intercorrelations between all measures are presented in Table 2.

Romantic Attraction at the Speed-Dating Event

Results of the first step of analysis (i.e., testing whether the full model explained significant variance in the data) for the romantic attraction measures at the speed-dating event can be found in Table 3. Results of testing the Matching Hypothesis for the four outcome measures are presented in Table 4, results of testing the Main Effects Hypothesis are presented in Table 5.

For all four romantic attraction measures at the speed-dating event, the full model explained significant variance in the data (see Table 3), indicating that there was some kind of relation between the predictors and the romantic attraction outcomes. However, in the subsequent steps of analysis, neither the Matching Hypothesis nor the Main Effects Hypothesis was supported for any of the four romantic attraction measures. In the analyses that tested the Matching Hypothesis, results were perfectly consistent across the four different romantic attraction measures. For all measures, the Matching Model fit the data significantly better than the null model (see Table 4), indicating that the Matching Model could explain some variation in the data. However, the Matching Model also fit the data significantly worse than the full model for all romantic attraction measures, indicating that there was a better explanation for the data than the Matching Hypothesis.

Similarly, in the analyses that tested the Main Effects Hypothesis, the Main Effects Model fit the data significantly better than the null model for all four romantic attraction measures (see Table 5). For *interest in another date* and *long-term romantic interest*, however, the Main Effects Model fit the data significantly worse than the full model. Thus, for these two romantic attraction measures, there was a better explanation for the data than the Main Effects Hypothesis. For the remaining two romantic attraction measures (i.e., feeling attracted and romantic choice), the Main Effects Model did not have a significantly worse fit than the full model, but when examining the crucial parameters of the Main Effects Model, it became obvious that, for both measures, the b_2 parameter (i.e., the main effect of own mate value) was not significantly negative (see Table 5). As a significantly negative main effect of own mate value (i.e., the choosiness effect) is part of the Main Effects Hypothesis, this means that the results for the feeling attracted measure and the romantic choice measure could also not be interpreted as supporting the Main Effects Hypothesis. Thus, for all four romantic attraction measures, neither the Main Effects Hypotheses nor the Matching Hypothesis was supported.

We therefore conducted exploratory analyses to determine which effects were revealed by the data. The results of these analyses are presented in Table 6 and Figure 2. Findings were highly consistent across the four romantic attraction measures. For all four measures, a strong linear positive main effect of the perceived mate value of the dating partner emerged (indicated by the significant b_1 parameters). This means that—regardless of the bindingness of the attraction measure—participants' romantic attraction to a dating partner was stronger, the higher they perceived their dating partner's mate value to be (i.e., the the-higher-the-better effect). In addition, for three of the four attraction measures (i.e., with the exception of the choice measure), there was a very small positive quadratic effect of the perceived mate value of the dating partner (indicated by the significant b_3 parameters), indicating that the

positive main effect of the perceived mate value of the dating partner (i.e., the the-higher-the-better effect) was not strictly linear but very slightly exponentially increasing. That is, the the-higher-the-better effect of the perceived mate value of the dating partner on participants' romantic attraction was minimally stronger at higher levels of the perceived mate value of the dating partner.

None of the exploratory analyses, however, revealed a main effect of participants' own mate value (neither linear nor curvilinear; as indicated by the consistently non-significant b_2 and b_5 parameters). That is, on all four romantic attraction measures, participants did *not* generally report less romantic attraction the higher their own mate value (i.e., there was no choosiness effect). Furthermore, none of the exploratory analyses yielded any evidence of a matching effect (i.e., a greater romantic attraction to dating partners similar in mate value) because for all romantic attraction measures the RSA parameter a_4 , which might have indicated such an effect, was not significant.⁶ Moreover, analyses consistently revealed an interaction between perceived mate value of the dating partner and participants' own mate value (indicated by the significant parameters b_4 , which was, however, only marginally significant for the romantic choice measure): The described positive main effect of the perceived mate value of the dating partner on a participant's romantic attraction to that dating partner (i.e., the the-higher-the-better effect) was stronger, the higher the participant's own mate value. Thus, although there was no general main effect of participants' own mate value (i.e., no choosiness effect), and participants did not report greater romantic attraction to dating partners with a similar mate value to their own (i.e., no matching effect), participants' own mate value nonetheless influenced their romantic attraction to their dating partners in that it moderated the strength of the the-higher-the-better effect of the dating partner's mate value. Finally, the bindingness of the romantic attraction measure did not seem to impact

findings because none of the effects reported above systematically changed with increasing (or decreasing) bindingness of the attraction measure (see Table 6 and Figure 2).

Romantic Interpersonal Outcomes in Subsequent Romantic Encounters

Due to the selected nature of the sample in the follow-up assessments (i.e., containing only the participants who had at least one match at the speed-dating event), we first examined whether variance in the measures used in the subsequent-encounter analyses was reduced, as this might have weakened the predictive power of the RSA regressions. Although the variances in the predictors and outcome measures used in the subsequent-encounter analyses were somewhat reduced compared to the variances in the full sample (see Table 1), this reduction was not very pronounced. We therefore computed our analyses as planned.

Results of testing the Matching Hypothesis for the three romantic interpersonal outcomes in subsequent romantic encounters are presented in Table 7. For the contact frequency measure, the full model did not explain significant variance in the data, indicating that the frequency of contact between match partners after the speed-dating event could not be predicted by the mate values of the two match partners or their interplay. Analyses involving the contact frequency measure therefore stopped at this point. For follow-up attraction and relationship quality, the full model explained significant variance in the data, indicating that for these two interpersonal outcome measures, there was some kind of relation to the mate values of the two match partners. However, the Matching Model did not have a significantly better fit than the null model for the relationship quality measure, and the Matching Model fit the data significantly worse than the full model for both the follow-up attraction measure and the relationship quality measure, indicating that, for both measures, the Matching Model did not fit the data. Thus, for all three romantic interpersonal outcome measures, the Matching Hypothesis was not supported.⁷

We therefore conducted exploratory analyses to examine which effects were revealed by the data (no exploratory analyses could be conducted for the contact frequency measure because, for this outcome, the full model did not explain significant variance). The results of these analyses are presented in Table 6 and Figure 2. Interestingly, the findings from these analyses were very similar to the findings from the exploratory analyses on initial romantic attraction reported above. For both the follow-up attraction measure and the relationship quality measure, exploratory analyses revealed a strong positive linear main effect of perceived mate value of the match partner (indicated by the significant b_1 parameters). That is, participants reported more positive interpersonal outcomes in subsequent encounters the higher they had perceived their match partner's mate value at the speed-dating event (i.e., the the-higher-the-better effect). Just as was found for most of the initial romantic attraction measures, this main effect was very slightly curved in an exponentially increasing way for the follow-up attraction measure (indicated by the significantly positive b_3 parameter) but not for the relationship quality measure. What is more, both subsequent interpersonal outcome measures again yielded no evidence of a main effect of participants' own mate value (i.e., no choosiness effect, neither linear nor curvilinear, as indicated by the non-significant b_2 and b_5 parameters), as well as no evidence of a matching effect (because of the non-significant a_4 parameters; see Table 6 and Figure 2). In addition, the interaction between perceived mate value of match partner and participant's own mate value was marginally significant for the follow-up attraction measure (but not for the relationship quality measure, see the b_4 parameters), again indicating that the positive main effect of the perceived mate value of the match partner on participants' attraction in subsequent romantic encounters (i.e., the the-higher-the-better effect) tended to be stronger for participants with a higher own mate value. As this interaction effect was only marginally significant, however, and emerged in only one of the two examined outcome measures, it should be interpreted with caution.

Discussion

The present article was the first to systematically investigate the two most popular theoretical assumptions about the influence of mate value on romantic attraction in real-life first romantic encounters. We investigated whether people report stronger romantic attraction to potential partners whom they perceive to have a mate value similar to their own (Matching Hypothesis) or whether two main effects determine romantic attraction (Main Effects Hypothesis) such that people report stronger romantic attraction to a potential partner the higher they perceive this potential partner's mate value to be (regardless of people's own mate value; i.e., the the-higher-the-better effect) and that people report less romantic attraction in general, the higher their own mate value (regardless of the potential partner's mate value; i.e., the choosiness effect). We examined the empirical evidence for each of these hypotheses. The present article furthermore provided a first examination of the impact of mate value on romantic interpersonal outcomes after a first mutually positive dating decision has been made. We expected participants to report more positive interpersonal outcomes in subsequent romantic encounters with a dating partner the more closely participants' perception of their dating partner's mate value matched their own mate value (Matching Hypothesis). To test these preregistered hypotheses, we used data from a large longitudinal speed-dating study which followed-up match partners (i.e., speed-dating partners who mutually agreed to exchange contact information) in the six weeks after the speed-dating event.

Findings from the Confirmatory Hypotheses Tests

Results from the confirmatory tests of the present hypotheses revealed that neither the Matching Hypothesis nor the Main Effects Hypothesis was supported for romantic attraction in the initial romantic encounter at the speed-dating event, indicating that both hypotheses in their proposed forms were not able to describe actual romantic attraction in a real-life first

date. For romantic interpersonal outcomes in subsequent romantic encounters after the speed-dating event, we likewise tested the Matching Hypothesis, but again the Matching Hypothesis was not supported. Thus, neither initial romantic attraction nor subsequent interpersonal outcomes between dating partners were highest if participants perceived a dating partner to be similar in mate value to themselves. The present findings therefore revealed no evidence at all in support of the Matching Hypothesis. This is in line with findings by Todd et al. (2007) who also found no evidence for mate-value matching in the romantic choices at a speed-dating event. Still, Back, Penke, et al. (2011) and Taylor et al. (2011) did find evidence for mate-value matching in initial dating situations. However, Back, Penke, et al. examined the impact of mate value on relationship effects of romantic outcomes (i.e., on outcome variables with actor and partner effects partialled out; Kenny, Kashy, & Cook, 2006). Back, Penke, et al. thus investigated a slightly different research question than the present study, as they were interested in a specific part of the variance of romantic outcomes. What is more, the matching effect revealed by Taylor et al. also does not contradict the present findings, as Taylor et al. examined a different kind of dating context (i.e., communicating in written form with potential partners on an online dating platform). Past research (Eastwick, Finkel, & Eagly, 2011; Eastwick et al., 2014) has shown that the mechanisms that influence romantic attraction can differ markedly between dating situations in which no in-person interaction takes place (such as the online dating context in Taylor et al., 2011) and dating situations that include in-person interactions (such as the present speed-dating context). The specific dating context might therefore influence whether the Matching Hypothesis is supported or not. The present findings provided evidence that there is no effect of mate-value matching on romantic outcomes in contexts in which an in-person interaction takes place between two dating partners. Whether there is an effect of mate-value matching in contexts without an actual in-person interaction remains to be more comprehensively investigated by future research.

Findings from the Exploratory Analyses

As dating partners' mate values did not influence romantic outcomes in the hypothesized way (i.e., neither according to the Matching Hypothesis, nor according to the Main Effects Hypothesis), we conducted exploratory analyses to identify how two dating partners' mate values might instead influence romantic outcomes in a first romantic encounter as well as in subsequent romantic encounters. Consistently across all exploratory analyses (both for initial romantic attraction and subsequent interpersonal outcomes), we found a strong positive main effect of perceived mate value of partner (i.e., a the-higher-the-better effect), thus supporting one of the two main effects proposed by the Main Effects Hypothesis: Both, romantic attraction (at the speed-dating event and in subsequent encounters) and perceived quality of subsequent encounters were higher the higher the dating partner's mate value was perceived to be—regardless of the degree of matching between perceived mate value of partner and own mate value. This finding is in line with prior findings of a positive main effect of a potential partner's mate value (and of other positive partner characteristics) on romantic attraction and romantic interpersonal outcomes (e.g., Asendorpf et al., 2011; Back, Penke, et al., 2011; Eastwick & Finkel, 2008; Eastwick et al., 2014; Fletcher et al., 2014; Hitsch et al., 2005; Kurzban & Weeden, 2005; Luo & Zhang, 2009). What is more, the present findings revealed first evidence that the the-higher-the-better effect of a dating partner's perceived mate value might not be strictly linear in nature but very slightly curved: In all but two exploratory analyses (across both initial and subsequent romantic encounters), the the-higher-the-better effect was minimally more pronounced at higher levels of the perceived mate value of the dating partner. A similar slightly curved effect was also observed in the impact of other positive partner characteristics on romantic attraction (Wurst, Humberg, et al., 2017). In both, the present findings and the

findings by Wurst, Humberg, et al. (2017), however, the slight curve in the the-higher-the-better effect was so weak that it may be almost negligible for most practical considerations.

Furthermore, for both initial romantic attraction and subsequent interpersonal outcomes, exploratory analyses yielded evidence of an interaction effect that indicated that the positive main effect of the perceived mate value of the partner (i.e., the the-higher-the-better effect) might be stronger for participants with higher own mate value. That is, the higher a person's own mate value, the more strongly did the perception of a dating partner's mate value impact this person's romantic attraction and romantic interpersonal outcomes with the given dating partner—again, regardless of the degree of matching between the two mate values. Thus, although people do not seem to feel attracted to and select potential partners of similar mate value to their own, their own mate value nonetheless seems to impact their romantic attraction to potential partners in that it may augment the main effect of the partner's mate value. However, this interaction effect was small in size and did not emerge consistently in all analyses (i.e., in one analysis it did not emerge at all, and in two out of six analyses it was only marginally significant). What is more, the analyses that revealed this interaction effect were exploratory in nature. Therefore, the present interaction effect first needs to be replicated by future research before any further conclusions can be drawn. Evidence in support of the existence of the interaction effect, however, might be found in studies that investigated the impact of physical attractiveness on initial romantic attraction because some of these studies revealed an equivalent interaction effect (i.e., the positive main effect of a potential partner's physical attractiveness on a person's romantic attraction to this partner has also been found to be stronger for persons who were themselves higher in physical attractiveness; Lee et al., 2008; Olderbak et al., 2017; Stroebe et al., 1971).

Although the first half of the Main Effects Hypothesis (i.e., the the-higher-the-better effect) was supported by our exploratory analyses, we found no evidence for the second half

of the Main Effects Hypothesis (i.e., the choosiness effect) in any of our exploratory analyses: There was no negative main effect of participants' own mate value on romantic outcomes in initial or subsequent romantic encounters—that is, participants' own mate value did not reduce their romantic attraction (at the speed-dating event or in subsequent encounters) or their perceived relationship quality in subsequent encounters with potential romantic partners. This absence of the choosiness effect led to the rejection of the Main Effects Model in our confirmatory analyses.

The consistent absence of the choosiness effect in the present study stands in contrast to the findings by Back, Penke, et al. (2011) who found a choosiness effect in speed-daters' romantic choices. However, the speed-dating setting in Back, Penke, et al. differed in one crucial aspect from the setting of the present speed-dating study—and this difference may have been responsible for the differing findings. In the study by Back, Penke, et al., the number of encountered speed-dating partners was much larger (i.e., $M = 11.35$) than in the present study (i.e., $M = 4.76$). Past research has demonstrated that, with increasing number of potential partners encountered, romantic choice strategies change (e.g., Lenton & Francesconi, 2010; Lenton & Stewart, 2008; see also Lenton, Fasolo, & Todd, 2008). Most important, it has been shown that the larger the number of speed-dating partners at a speed-dating event, the more strongly highly desirable partners were preferred over less desirable partners, thus increasing the success of highly desirable persons in large speed-dating settings (Lenton, Fasolo, & Todd, 2009). It might therefore be possible that participants higher in mate value can be choosier in large but not in small speed-dating settings—which might explain the choosiness effect in the large speed-dating setting by Back, Penke, et al. and the absence of a choosiness effect in the small speed-dating setting in the present study. This explanation, however, is post hoc and should be tested in future speed-dating studies in which the number of speed-dating partners is varied systematically.

Finally, the bindingness of the romantic outcome measures did not influence the present findings in any systematic way. This stands in contrast to the theoretical assumption of an impact of the outcome's bindingness, which proposes that main effects of mate value might emerge when examining romantic outcomes of low bindingness such as romantic desire, whereas matching effects might emerge when examining romantic outcomes of high bindingness such as actual romantic choices or approach behaviors (Berscheid et al., 1971; Figueredo et al., 2006; Penke et al., 2008; Taylor et al., 2011; Van Straaten et al., 2009). However, a closer look at the respective literature reveals that prior empirical evidence in support of this theoretical assumption has been inconsistent—both in studies investigating the impact of physical attractiveness on romantic attraction (for which this assumption was originally formulated) as well as in the few existing studies that included investigations of the impact of mate value on romantic attraction: Romantic outcomes with high bindingness have frequently shown no indication of a matching effect in prior research (e.g., Curran & Lippold, 1975; Eastwick & Finkel, 2008; Kurzban & Weeden, 2005; Lee et al., 2008; Todd et al., 2007; Walster et al., 1966). And the present findings also indicate that the bindingness of the outcome measure does not seem to moderate the emergence of mate-value-matching effects. The theoretical assumption of the impact of the outcome's bindingness, thus, might be empirically untenable.

To sum up, the present research found partial support for the Main Effects Hypothesis, as the the-higher-the-better effect was supported (i.e., there was a strong positive main effect of the perceived mate value of a potential partner on romantic outcomes in initial and subsequent romantic encounters), but the choosiness effect was not supported (i.e., there was no negative main effect of own mate value on romantic attraction and interpersonal outcomes). What is more, the the-higher-the-better effect seemed to be slightly stronger for individuals with higher own mate value. The present research provided no evidence in

support of the Matching Hypothesis in initial and subsequent romantic encounters, and yielded no evidence of an impact of the bindingness of the romantic outcome measure.

Implications of the Present Findings

Although the Matching Hypothesis is very popular and is often regarded as well-established, the present findings indicate that neither initial romantic attraction nor later romantic interpersonal outcomes seem to be influenced by the degree of matching between dating partners' mate values. This suggests that the Matching Hypothesis—appealing as it might be—does not necessarily describe the reality of human mate selection: People do not seem to feel a stronger romantic attraction to, or to more likely select, or to experience more positive subsequent interpersonal outcomes with potential partners whom they perceive to match their own mate value. The Matching Hypothesis thus does not seem to hold in early romantic encounters. Several researchers who have investigated the impact of matching in physical attractiveness on initial romantic attraction have reached corresponding conclusions (Kalick & Hamilton, 1986; Taylor et al., 2011). Taken together, these findings and considerations illustrate that the Matching Hypothesis cannot and should not be treated as well-established. Thus, theorizing and hypothesizing about human mate selection, which in the past often assumed the matching principle to underlie romantic attraction and partner choice (e.g., Conroy-Beam & Buss, 2016a; Eastwick & Buck, 2014; Figueredo et al., 2006; Miller & Todd, 1998; Penke et al., 2008; Simão & Todd, 2002; Van Straaten et al., 2009) might profit from exploring further possibilities that do not necessarily rely on the Matching Hypothesis. Instead of partner selection according to the matching principle, the present findings indicate that romantic attraction and selection might work according to a the-higher-the-better effect: The higher a potential partner's mate value, the better it is for romantic attraction, selection, and subsequent interpersonal outcomes—regardless of the degree of

matching between dating partners' mate values. Future theorizing and hypothesizing about human mate selection might more firmly incorporate this potential mechanism.

The present findings that matching on mate values seems to play no role in initial or subsequent romantic encounters furthermore suggest that the mate-value matching demonstrated in established romantic couples (e.g., Conroy-Beam & Buss, 2016a; Figueredo & Wolf, 2009) develops only during later phases of romantic acquaintance and does not result from a tendency to select dating partners with a matching mate value right from the start. There are several possible mechanisms through which a later mate-value matching might come about: First, it might be possible that the desire for a romantic partner with a similar mate value to one's own emerges only in later phases of relationship formation or relationship maintenance—for example because it then might become important whether a romantic partner is or will be faithful (e.g., when planning to start a family) or whether there might be a risk of one's partner leaving the family for an alternative romantic partner who is higher in mate value than oneself. The supposition that matching in mate values becomes a selection criterion only in later phases of romantic acquaintance is consistent with stage models of human mate selection that presume that different partner characteristics become important at different stages of romantic acquaintance (e.g., Miller & Todd, 1998). Second, it might also be possible that matching in mate values never becomes a selection criterion during the course of romantic acquaintance, and, instead, it always remains people's goal to attain a romantic partner high in mate value (i.e., the the-higher-the-better effect). This would lead to one partner always being less satisfied than the other partner in romantic couples that have a discrepancy in mate values, which renders these romantic relationships unstable and likely to dissolve over time (Figueredo et al., 2006; Kalick & Hamilton, 1986; Sela et al., in press; see also Eastwick, 2016; Figueredo & Wolf, 2009). Support for this supposition comes from computer simulations that have demonstrated that even if it always remains people's

goal to attract a romantic partner high in mate value, stable established couples are still matched on mate value (Conroy-Beam & Buss, 2016a; Kalick & Hamilton, 1986; Miller & Todd, 1998; see also Ellis & Kelley, 1999). Third and finally, mate-value matching in established couples might not be a result of selection processes at all, but occur simply as a result of the romantic partners becoming more similar over time, for example due to the high degree of shared environments and shared experiences in romantic couples (e.g., Aron, 1988; Melamed, 1994; see also Gonzaga, Carter, & Buckwalter, 2010; Rammstedt, Spinath, Richter, & Schupp, 2013).

Limitations and Future Directions

One might argue that most of our romantic attraction measures at the speed-dating event (i.e., feeling attracted, interest in another date, and long-term romantic interest) measured romantic desire rather than actual choice or approach behavior. Thus, one might argue that these measures were low in bindingness and therefore showed no mate-value matching effect. However, the present research also included an actual romantic choice measure and measures of romantic interpersonal outcomes in subsequent encounters. Such measures do assess actual choice and approach behavior and still revealed no matching effect.

A second concern that might be brought forward is that our participants might have been too young ($M = 22.88$ years) to have already learned that it would be more adaptive to select dating partners who match their own level of mate value (see Berscheid et al., 1971; Penke et al., 2008; Van Straaten et al., 2009). However, we do not think that the age of our sample was responsible for the absence of a mate-value matching effect in our findings: At the age of almost 23, people in Germany on average have about six years of romantic dating experience (Bode & Heßling, 2015), which, in our opinion, should be enough time to gather the necessary learning experience. Nonetheless, future research should examine whether older samples might show mate-value-matching effects in early-stage romantic encounters.

Future research should also systematically examine the impact of a potential partner's mate value in different kinds of dating contexts. The hypothetical context implemented in the study by Olderbak et al. (2017) revealed no impact of mate value on romantic evaluations at all (i.e., no impact of the perceived mate value of an opposite-sex other, no impact of participant's own mate value, and no effect of matching between the two mate values). Future research should therefore systematically examine whether mate value only influences romantic evaluations in real-life dating contexts. What is more, even within real-life dating situations, the kind of impact that mate value has might depend on the specific context. The present findings indicate that matching on mate values does not seem to play a role in romantic outcomes in real-life dating situations that include an in-person interaction. The findings by Taylor et al. (2011) furthermore indicate that mate-value-matching effects might occur in real-life dating situations that do not involve an in-person interaction (i.e., when communicating in writing with a potential partner on an online dating platform). Researchers have argued that romantic attraction processes might be quite different in the exciting situation of actually meeting a potential partner than in the more abstract situations in which no prior face-to-face interaction has taken place (Eastwick et al., 2011, 2014). A systematic examination of the dating context might therefore yield insights into whether the presence of a face-to-face interaction might affect the occurrence of mate-value-matching effects. Finally, as noted above, systematic examinations of the dating context should also investigate the impact of the number of encountered potential partners to answer the question of whether the emergence of a choosiness effect of a person's own mate value indeed depends on the number of encountered potential partners as hypothesized above.

As the present findings revealed a strong impact of the perceived mate value of a potential partner on romantic attraction, future research should also try to answer several crucial questions about the perception of a potential partner's mate value. First, what are the

cues or partner characteristics that the mate-value judgment is based on? Many partner characteristics have been proposed to influence a person's mate value (e.g., physical attractiveness, intelligence, warmth/caring, self-assuredness; e.g., Ellis et al., 2002; Kirsner et al., 2003; Miller & Todd, 1998), but to our knowledge, no studies so far have investigated which cues or partner characteristics actually influence a global evaluation of a potential partner's mate value and how the different cues are weighted for the global mate-value evaluation (see also Conroy-Beam & Buss, 2016b; Strouts, Brase, & Dillon, 2017; for corresponding analyses in different trait domains, see, e.g., Borkenau & Liebler, 1992; Gangestad, Simpson, DiGeronimo, & Biek, 1992; Murphy, 2007; Naumann, Vazire, Rentfrow, & Gosling, 2009; for an overview, see Back & Nestler, 2016). Second, do individuals differ in which cues they use to gauge a potential partner's mate value and in how they weigh each of these cues in their mate-value evaluation? People differ in what characteristics they prefer in a romantic partner (e.g., Eastwick et al., 2014; Gebauer, Leary, & Neberich, 2012; Li & Kenrick, 2006). Therefore, we would expect different individuals to pay attention to different cues and to weigh the cues differently when estimating a potential partner's mate value (for examinations of individual differences in cue utilization in different trait domains, see Hirschmüller, Egloff, Nestler, & Back, 2013; Nestler, Egloff, Kүfner, & Back, 2012). What is more, partner preferences might moderate which cues individuals use and how strongly each cue is weighed in the global evaluation of a potential partner's mate value.

Third, do the cues or partner characteristics that impact the global mate-value evaluation or their weighting in the global evaluation change across the course of romantic acquaintance with a potential partner? In initial romantic encounters, people have access to only a limited amount of information about a potential partner. It might therefore be reasonable to presume that the evaluation of a potential partner's mate value in initial

romantic encounters may be based primarily on easily observable characteristics such as physical attractiveness, extraversion, or self-assuredness (see also Back, Schmukle, & Egloff, 2011; Borkenau & Liebler, 1992; Fletcher et al., 2014; Hunt, Eastwick, & Finkel, 2015; Kurzban & Weeden, 2005; Olderbak et al., 2017). Once people get to know a potential partner better during the course of romantic acquaintance, we would also expect other less easily observable important partner characteristics (such as intelligence, warmth/caring, values and attitudes, or emotional stability) to increase their impact on the global evaluation of the potential partner's mate value (for examinations of changes in the impact of partner characteristics and in cue utilization over time in different trait domains, see Leckelt, Küfner, Nestler, & Back, 2015; Wurst, Gerlach, et al., 2017; see also Back & Vazire, 2015). Fourth, does the global evaluation of a dating partner's mate value change over the course of time, or does this global evaluation remain stable even if the cues that are used and/or their weighting might change over time? And if there is a change in the global evaluation of a dating partner's mate value, how is this change related to changes in romantic attraction to the dating partner? Finally, past research has demonstrated associations between the perception of several kinds of partner characteristics and romantic attraction (e.g., Asendorpf et al., 2011; Back, Penke, et al., 2011; Eastwick & Finkel, 2008; Kurzban & Weeden, 2005; Luo & Zhang, 2009). Does the global mate-value evaluation mediate this association? That is, do the different perceived partner characteristics not directly impact romantic attraction but rather impact the global evaluation of a dating partner's mate value, which then in turn impacts romantic attraction? Such a finding would underscore the importance of the mate-value construct for human romantic attraction. To answer these many questions, future research should examine cues in initial dating situations and should repeatedly assess individual's perceptions of (a) potential partners' crucial characteristics and (b) potential partners' global mate value during the course of dating and relationship formation.

Future research on the impact of mate value on romantic attraction and partner choice should furthermore track the formation of romantic relationships with repeated assessments for an even longer period than the six weeks examined in the present research. This might allow researchers to identify which of the three mechanisms proposed above may be responsible for the mate-value matching in established couples as matching does not seem to be a selection criterion from early on (i.e., Does mate-value matching become a selection criterion in later stages of romantic acquaintance? Or does mate-value matching never become a conscious selection criterion, but non-matching couples are unstable for other reasons? Or do romantic partners' mate values become similar over time? See also Figueredo & Wolf, 2009).

Conclusion

The present article was the first to systematically examine the joint influence of two dating partners' mate values on initial romantic attraction and early-stage romantic interpersonal outcomes between these dating partners in real-life romantic encounters. Results revealed that matching on mate values does not seem to play a role in romantic outcomes in the early stages of romantic acquaintance. These findings indicate that the popular Matching Hypothesis might not necessarily describe the reality of human mate selection. Instead, early-stage romantic outcomes seem to be more positive the higher the perceived mate value of the dating partner is. Theories and research on human mate selection should be adapted to more strongly represent this latter mechanism and try to identify and explain the processes that underlie this effect.

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Footnotes

¹ The “Date me for Science Study” was designed to examine a number of research questions and will therefore be used for several papers investigating different, independent research questions. At this point, one other paper that used data from the “Date me for Science Study” has been submitted (Wurst, Humberg, & Back, 2017). The paper examined effects of rose-colored glasses (i.e., positive over-perception) in the perception of potential partners’ characteristics (*not* including mate value) and is thus completely independent from the research questions and partner characteristics investigated in the present paper.

² We did not include an item on short-term romantic interest in the present analyses because past research indicated that different processes might operate for short-term romantic interest (e.g., Kenrick, Sadalla, Groth, & Trost, 1990; Li & Kenrick, 2006; Li et al., 2013), and especially the theoretical assumptions underlying the Matching Hypothesis (i.e., not being able to retain a partner with a higher mate value than one’s own) rather pertain to the processes that operate for long-term romantic interest (e.g., Figueredo et al., 2006). Therefore, we also did not include items for explicitly assessing short-term mate value in our mate-value measures.

³ The verbal labels of the scale in Follow-Up 3 differed slightly because in Follow-Up 3, twice as much time had passed since the last assessment than in the other follow-ups. For the scale values to represent equivalent degrees of contact frequency (i.e., contact/day) across all follow-ups, we thus adjusted the verbal labels in Follow-Up 3.

⁴ We did not calculate Cronbach’s alpha for these aggregations because it is very likely that contact frequency was not consistent across the different kinds of contact (written, phone, personal). Cronbach’s alpha would therefore not provide an appropriate indication of reliability (see Bollen & Lennox, 1991; Streiner, 2003).

⁵ The Matching Model is thus equivalent to a Rising Ridge Model as defined by Schönbrodt (2016b) plus the additional constraint that the curvature above the line of incongruence had to be an inverted u-shape. Please note that in the Matching Model, we allowed the ridge of the surface to be rising (or falling) along the line of congruence, as it is irrelevant for the Matching Hypothesis whether the ridge is rising/falling or whether it is flat (as is depicted in Figures 1a and 1c).

⁶ For the sake of completeness, Table 6 and Figure 2 also present the estimates for the three other RSA parameters a_1 to a_3 (which represent the slope of the response surface above the line of congruence, the curvature of the surface above the line of congruence, and the slope of the surface above the line of incongruence, respectively). However, as the effects that these parameters show do directly result from the effects of the regression coefficients that we discussed above (as the RSA parameters are computed from the regression coefficients, see Cohen et al., 2010; Shanock et al., 2010), and the parameters a_1 to a_3 are not related to our research questions, we do not discuss them further.

⁷ One might argue that in predicting interpersonal outcomes in subsequent encounters, objective measures of mate value might be a meaningful alternative to the subjective mate-value measures assessed at the speed-dating event for the following reason. Both, participants' perceptions of their match partners' mate values and their self-perceived own current mate value might have changed in the time following the speed-dating event (e.g., because participants might have updated their impressions of their match partners and because a person's own self-perceived mate value is subject to fluctuations over time; e.g., Buss et al., 2017; Kavanagh et al., 2010). If this were indeed the case, a more objective operationalization of mate value might offer a meaningful alternative to the subjective mate value measures assessed at the speed-dating event, when predicting interpersonal outcomes in subsequent encounters. We therefore repeated the subsequent-encounter analyses with more

objective measures of both participants' own and the match partners' mate values (i.e., rated by independent observers who watched the videos of the speed-dates). However, when using these more objective mate-value measures, the full model did not explain significant variance in the data for all three interpersonal outcome measures, indicating that the objective mate-value measures could not predict subsequent interpersonal outcomes at all. Details on methods and results of these additional analyses can be found in the online supplemental materials (see <http://osf.io/8utu8/>).

Table 1

Descriptive Statistics of all Assessed (Unstandardized) Measures

Measure	<i>n</i>	<i>M</i>	<i>SD</i>	min	max
Predictors:					
Perceived mate value of partner	1896	4.08	1.42	1.00	7.00
Own mate value	1896	4.70	1.01	1.00	7.00
Outcomes:					
Feeling attracted	1896	3.45	1.77	1.00	7.00
Interest in another date	1896	3.30	2.05	1.00	7.00
Long-term interest	1896	3.06	1.80	1.00	7.00
Choice	1896	0.43	0.50	0.00	1.00
Contact frequency (follow-up)	156	1.96	0.99	1.00	5.67
Romantic attraction (follow-up)	152	3.52	1.61	1.00	7.00
Relationship quality (follow-up)	114	2.99	1.23	1.00	6.40
Predictors in the strongestly selected follow-up sample:					
Perceived mate value of partner	114	4.87	1.11	2.00	7.00
Own mate value	114	4.84	0.96	2.00	7.00

Table 2

Pearson's Zero-Order Correlations between all Measures Assessed

Measure	Perc. MV of partner	Own MV	Feeling attracted	Interest in another date	Long-term interest	Choice	Cont. freq. (f.-up)	Rom. attr. (f.-up)
Predictors:								
Perceived mate value of partner	--							
Own mate value	-.05	--						
Outcomes:								
Feeling attracted	.78	-.04	--					
Interest in another date	.66	-.01	.85	--				
Long-term interest	.67	-.04	.83	.89	--			
Choice	.52	-.01	.69	.83	.74	--		
Contact frequency (follow-up)	.23	-.07	.25	.28	.30	NA	--	
Romantic attraction (follow-up)	.53	-.01	.50	.43	.47	NA	.55	--
Relationship quality (follow-up)	.34	-.07	.25	.21	.32	NA	.76	.65

Note. MV = mate value. Correlations with the dichotomous romantic-choice measure represent point-biserial correlation coefficients. Correlations

between the dichotomous romantic-choice measure and the follow-up measures could not be computed (indicated by NAs) because follow-up data were obtained only for chosen speed-dating partners (i.e., choice = 1 in all cases).

Significant correlations ($p < .01$, two-tailed) are presented in boldface.

Table 3

First Romantic Encounter Outcome Measures: Explained Variance (R^2) by the Full Model (Step 1 of the Analyses)

Outcome measure	R^2	$p(R^2)$
Feeling attracted	.61	<.001
Interest in another date	.45	<.001
Long-term interest	.46	<.001
Choice	.27	<.001

Note. $n = 1,896$ observations for all RSAs.

Table 4

First Romantic Encounter Outcome Measures: Results of the Confirmatory Test of the Matching Model

Outcome measure	RSA model	<i>df</i>	χ^2	$\Delta\chi^2_s$	p ($\Delta\chi^2_s$)	Model confirmed against null/full model?
Feeling attracted	Matching Model	3	676.09			
	Null	5	1783.04	743.66	<.001	Yes
	Full	0	0.00	580.63	<.001	No
Interest in another date	Matching Model	3	356.69			
	Null	5	1119.89	727.76	<.001	Yes
	Full	0	0.00	291.28	<.001	No
Long-term interest	Matching Model	3	399.83			
	Null	5	1158.58	707.80	<.001	Yes
	Full	0	0.00	322.79	<.001	No
Choice	Matching Model	3	160.69			
	Null	5	424.75	264.06	<.001	Yes
	Full	0	0.00	160.69	<.001	No

Note. The table contains the results of Step 2 of the analyses—that is, the results of the χ^2 -

difference test of whether the Matching Model fit the data significantly better than the null

model and not significantly worse than the full model. $n = 1,896$ observations for all RSAs.

df = degrees of freedom of the respective RSA model; $\Delta\chi^2_s$ = scaled χ^2 -difference (Satorra &

Bentler, 2001; see Rosseel, 2016) between null/full model and the Matching Model.

Table 5

First Romantic Encounter Outcome Measures: Results of the Confirmatory Test of the Main Effects Model

Outcome measure	RSA model	Step 2				Model confirmed against null/full model?	Step 3			
		<i>df</i>	χ^2	$\Delta\chi^2_s$	$P(\Delta\chi^2_s)$		<i>b</i> ₁	<i>p</i> (<i>b</i> ₁)	<i>b</i> ₂	<i>p</i> (<i>b</i> ₂)
Feeling attracted	Main Effects Model	3	17.50				0.70	<.001	0.00	-- ^a
	Null	5	1783.04	2016.27	<.001	Yes				
	Full	0	0.00	11.12	.011	Yes				
Interest in another date	Main Effects Model	3	27.01							
	Null	5	1119.89	1631.60	<.001	Yes				
	Full	0	0.00	18.28	<.001	No				
Long-term interest	Main Effects Model	3	25.33							
	Null	5	1158.58	872.98	<.001	Yes				
	Full	0	0.00	23.28	<.001	No				
Choice	Main Effects Model	3	6.08				0.72	<.001	0.00	-- ^a
	Null	5	424.75	418.66	<.001	Yes				
	Full	0	0.00	6.08	.108	Yes				

Note. *n* = 1,896 observations for all RSAs. Step 2 = χ^2 -difference test of whether the Main Effects Model fit the data significantly better than the null model and not significantly worse than the full model; *df* = degrees of freedom of the respective RSA model; $\Delta\chi^2_s$ = scaled χ^2 -difference (Satorra & Bentler, 2001; see Rosseel, 2016) between null/full model and the Main Effects Model; Step 3 = inspecting the crucial estimated parameters *b*₁ and *b*₂ for statistical significance (if the Main Effects Model was confirmed against the null and the full model).

^a The *p*-value of *b*₂ could not be computed as *b*₂ was estimated to be zero.

Table 6

First and Subsequent Romantic Encounter Outcome Measures: Parameter Estimates (Including Statistical Significance and 99% Confidence Intervals) from the Full Model Exploratory RSAs

Outcome measure	Regression coefficient														
	b ₁			b ₂			b ₃			b ₄			b ₅		
	Est.	[99% CI]	<i>p</i>	Est.	[99% CI]	<i>p</i>	Est.	[99% CI]	<i>p</i>	Est.	[99% CI]	<i>p</i>	Est.	[99% CI]	<i>p</i>
F	0.70	[0.66, 0.75]	<.001	0.02	[-0.04, 0.08]	.385	0.03	[0.01, 0.06]	.002	0.05	[0.01, 0.09]	.003	0.00	[-0.05, 0.05]	.991
I	0.60	[0.55, 0.66]	<.001	0.05	[-0.02, 0.12]	.069	0.04	[0.01, 0.07]	<.001	0.07	[0.02, 0.12]	<.001	0.00	[-0.05, 0.05]	.862
L	0.61	[0.56, 0.67]	<.001	0.02	[-0.05, 0.08]	.557	0.04	[0.01, 0.07]	.001	0.07	[0.02, 0.11]	.001	-0.03	[-0.08, 0.02]	.094
C	0.72	[0.63, 0.81]	<.001	0.05	[-0.05, 0.15]	.223	0.01	[-0.06, 0.09]	.615	0.08	[-0.02, 0.18]	.045	0.02	[-0.07, 0.10]	.579
RA	0.59	[0.40, 0.78]	<.001	-0.06	[-0.24, 0.11]	.350	0.12	[0.03, 0.21]	.001	0.11	[-0.02, 0.25]	.030	0.00	[-0.10, 0.10]	.984
RQ	0.37	[0.14, 0.60]	<.001	-0.13	[-0.39, 0.12]	.178	0.08	[-0.05, 0.21]	.108	0.08	[-0.07, 0.22]	.166	-0.05	[-0.20, 0.11]	.419
Outcome measure	RSA parameter														
	a ₁			a ₂			a ₃			a ₄					
	Est.	[99% CI]	<i>p</i>	Est.	[99% CI]	<i>p</i>	Est.	[99% CI]	<i>p</i>	Est.	[99% CI]	<i>p</i>			
F	0.72	[0.66, 0.79]	<.001	0.08	[0.02, 0.14]	<.001	0.69	[0.61, 0.76]	<.001	-0.02	[-0.10, 0.06]	.535			
I	0.65	[0.58, 0.73]	<.001	0.12	[0.05, 0.18]	<.001	0.56	[0.46, 0.65]	<.001	-0.03	[-0.11, 0.06]	.422			
L	0.63	[0.55, 0.70]	<.001	0.08	[0.01, 0.14]	.003	0.60	[0.50, 0.69]	<.001	-0.06	[-0.14, 0.03]	.088			
C	0.77	[0.62, 0.91]	<.001	0.11	[-0.05, 0.27]	.076	0.67	[0.54, 0.80]	<.001	-0.05	[-0.18, 0.09]	.366			
RA	0.52	[0.29, 0.75]	<.001	0.23	[0.08, 0.39]	<.001	0.65	[0.37, 0.94]	<.001	0.00	[-0.22, 0.22]	.960			
RQ	0.23	[-0.12, 0.59]	.085	0.11	[-0.15, 0.37]	.273	0.50	[0.17, 0.84]	<.001	-0.04	[-0.24, 0.15]	.567			

Note. F = feeling attracted; I = interest in another date; L = long-term romantic interest; C = romantic choice; RA = romantic attraction in

subsequent encounters; RQ = relationship quality in subsequent encounters; Est. = parameter estimate; CI = confidence interval for the

parameter estimate. Parameters b₁ to b₅ denote the estimated regression coefficients in Equation 1, parameters a₁ to a₄ denote the estimated RSA

parameters (e.g., Cohen et al., 2010). b₁ = linear effect of perceived mate value of partner; b₂ = linear effect of own mate value; b₃ = quadratic

effect of perceived mate value of partner; b_4 = interaction between perceived mate value of partner and own mate value; b_5 = quadratic effect of own mate value; a_1 = slope of the response surface above the line of congruence; a_2 = curvature of the response surface above the line of congruence; a_3 = slope of the response surface above the line of incongruence; a_4 = curvature of the response surface above the line of incongruence.

Table 7

Subsequent Romantic Encounter Outcome Measures: Results of the Confirmatory Test of the Matching Model

Outcome measure	<i>n</i> ^a	RSA model	Step 1		Step 2				Model confirmed against null/full model?
			<i>R</i> ²	<i>p</i> (<i>R</i> ²)	<i>df</i>	χ^2	$\Delta\chi^2_s$	<i>p</i> ($\Delta\chi^2_s$)	
Contact frequency	156	Matching Model	.03	.130					
		Null							
		Full	.09	.019					
Romantic attraction	152	Matching Model	.15	<.001	3	36.75			
		Null			5	61.99	25.55	<.001	Yes
		Full	.34	<.001	0	0.00	65.23	<.001	No
Relationship quality	114	Matching Model	.05	.062	3	12.83			
		Null			5	18.54	8.58	.014	No
		Full	.15	.003	0	0.00	15.18	.002	No

Note. *n* = number of observations entered into each RSA; Step 1 = test of whether the full model explained significant variance in the data; *R*² = amount of explained variance by the respective RSA model; Step 2 = χ^2 -difference test of whether the Matching Model fit the data significantly better than the null model and not significantly worse than the full model; *df* = degrees of freedom of the respective RSA model; $\Delta\chi^2_s$ = scaled χ^2 -difference (Satorra & Bentler, 2001; see Rosseel, 2016) between null/full model and the Matching Model.

^a The number of observations differed between outcome measures (a) because in the follow-up questionnaires, romantic attraction was assessed after the contact-frequency measures and four participants stopped filling out the follow-up questionnaires after answering the contact-frequency items but before answering the romantic-attraction item, and (b) because relationship quality—in contrast to the other two outcome measures—was assessed for only those match partners with whom participants had engaged in contact at least once after the speed-dating event.

Romantic attraction at a first romantic encounter:

Interpersonal romantic outcomes in subsequent romantic encounters:

Figure 1. Summary of our hypotheses. Graphs (a) and (b) depict the RSA representations of the two competing hypotheses for romantic attraction at a first romantic encounter: (a) Matching Hypothesis (i.e., higher romantic attraction to a potential partner the more closely the perceived mate value of the potential partner matches one's own mate value), (b) Main Effects Hypothesis (i.e., the-higher-the-better effect [higher romantic attraction to a potential partner the higher the potential partner's mate value is perceived to be, regardless of one's own mate value] and choosiness effect [generally lower romantic attraction to potential partners the higher one's own mate value, regardless of the potential partner's mate value]). Graph (c) depicts the RSA representation of the hypothesis for romantic interpersonal outcomes in subsequent romantic encounters: the Matching Hypothesis (i.e., more positive interpersonal outcomes with a dating partner the more closely the perceived mate value of the dating partner matches one's own mate value). Lines *a* and *b* represent the line of congruence and the line of incongruence, respectively. Lines *c* and *d* in Graph (b) were included to illustrate the main effects and represent (randomly chosen) lines on which own mate value (Line *c*) and perceived partner's mate value (Line *d*) are constant. The shape of the surface above Line *c* thus represents the the-higher-the-better effect, the shape of the surface above Line *d* represents the choosiness effect.

First romantic encounter:

$$\begin{aligned} b_1 &= 0.70 \\ b_2 &= 0.02 \\ b_3 &= 0.03 \\ b_4 &= 0.05 \\ b_5 &= 0.00 \\ a_1 &= 0.72 \\ a_2 &= 0.08 \\ a_3 &= 0.69 \\ a_4 &= -0.02 \end{aligned}$$

$$\begin{aligned} b_1 &= 0.60 \\ b_2 &= 0.05 \\ b_3 &= 0.04 \\ b_4 &= 0.07 \\ b_5 &= 0.00 \\ a_1 &= 0.65 \\ a_2 &= 0.12 \\ a_3 &= 0.56 \\ a_4 &= -0.03 \end{aligned}$$

$$\begin{aligned} b_1 &= 0.61 \\ b_2 &= 0.02 \\ b_3 &= 0.04 \\ b_4 &= 0.07 \\ b_5 &= -0.03 \\ a_1 &= 0.63 \\ a_2 &= 0.08 \\ a_3 &= 0.60 \\ a_4 &= -0.06 \end{aligned}$$

$$\begin{aligned} b_1 &= 0.72 \\ b_2 &= 0.05 \\ b_3 &= 0.01 \\ b_4 &= 0.08^\dagger \\ b_5 &= 0.02 \\ a_1 &= 0.77 \\ a_2 &= 0.11 \\ a_3 &= 0.67 \\ a_4 &= -0.05 \end{aligned}$$

Subsequent romantic encounters:

$$\begin{aligned} b_1 &= 0.59 \\ b_2 &= -0.06 \\ b_3 &= 0.12^\dagger \\ b_4 &= 0.11^\dagger \\ b_5 &= 0.00 \\ a_1 &= 0.52 \\ a_2 &= 0.23 \\ a_3 &= 0.65 \\ a_4 &= 0.00 \end{aligned}$$

$$\begin{aligned} b_1 &= 0.37 \\ b_2 &= -0.13 \\ b_3 &= 0.08 \\ b_4 &= 0.08 \\ b_5 &= -0.05 \\ a_1 &= 0.23 \\ a_2 &= 0.11 \\ a_3 &= 0.50 \\ a_4 &= -0.04 \end{aligned}$$

Figure 2. Response surfaces and parameter estimates of the full model exploratory RSAs for both the first and subsequent romantic encounter data. The dots in the graphs represent the actual observed data points; the surfaces represent the predicted values from Equation 1. Each graph also depicts the line of congruence (front to back) and the line of incongruence (left to right). For plotting the response surface of the dichotomous romantic choice measure, a *probit* link function was used (which resulted in the slightly s-shaped form of the surface). This surface thus represents the predicted probability of choosing a given dating partner. Parameters b_1 to b_5 denote the estimated regression coefficients in Equation 1 (b_1 = linear effect of perceived mate value of partner; b_2 = linear effect of own mate value; b_3 = quadratic effect of perceived mate value of partner; b_4 = interaction between perceived mate value of partner and own mate value; b_5 = quadratic effect of own mate value), parameters a_1 to a_4 denote the estimated RSA parameters (a_1 = slope of the response surface above the line of congruence, a_2 = curvature of the response surface above the line of congruence, a_3 = slope of the response surface above the line of incongruence, a_4 = curvature of the response surface above the line of incongruence). Significant parameter estimates ($p < .01$, two-tailed) are presented in boldface. Daggers indicate marginally significant parameter estimates ($.01 \leq p < .05$).