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What you see is what you want to get:

**Perceived abilities outperform objective test performance in predicting mate appeal
in speed dating**

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Abstract

Are intelligent, creative, and emotionally competent people more desirable? Evolution-based theories and studies on the ideal partner suggest that they are. We aimed to assess whether verbal, numerical, and spatial intelligence, creativity, and intra- and interpersonal emotional competence are associated with higher real-life mate appeal. In speed dates, 87 women and 88 men met up to 14 members of the opposite sex (2188 observations). While only one measured ability—women’s creativity—was significantly associated with mate appeal, ability perceptions by speed-dating partners could broadly predict mate appeal. Effects of perceived and measured abilities were substantially reduced after controlling for physical attractiveness. These results suggest that the investigated abilities play a lesser role in initial attraction than proposed in the past.

Keywords: mate appeal; intelligence; creativity; emotional competence; perceived abilities; speed dating; person perception; social relations modeling

Highlights

- Women with higher creativity (ideational fluency) had higher mate appeal.
- Intelligence and emotional competence did not significantly predict mate appeal.
- More substantial effects were found for speed-dating ratings of the same abilities.
- Controlling for physical attractiveness further reduced effects of abilities.
- Perceived abilities seem to be more relevant for attraction than measured ones.

What you see is what you want to get:

Perceived abilities outperform objectively measured ones in predicting mate appeal in speed dating

What attracts us to other people? Research suggests that it might not only be how good-looking they are or how great their personality is but also how smart they are: Across many different cultures, cognitive abilities are among the most desirable traits in potential partners (Buss et al., 1990; Walter et al., 2020). And, according to theories from evolutionary psychology (e.g., Miller, 2000), this makes a lot of sense: Higher intelligence might not only have come with better chances of survival but could also have been an indicator of good genes. When considering the appeal of abilities, both evolutionary theories and research on partner preferences have often focused on general intelligence but little is known about how these relations generalize to more specific abilities. And thus far, surprisingly few studies in this field have actually measured a person's cognitive abilities when examining how desirable they are to others. The present investigation aims to close these gaps by determining what role a diverse set of – objectively measured – abilities play for attraction.

1.1. The appeal of abilities in evolution-based theories

The notion that we are attracted to intelligence and other abilities has a long background in evolution-based theories. In his sexual selection theory, Darwin (1871) argued that some adaptations have evolved because they are associated with mating-advantages. According to Miller (2000), human intelligence has evolved through such sexual selection processes because it advertises good genes to prospective partners as a so-called fitness indicator. High intelligence might also show that a person could be a good provider (Prokosch et al., 2009). Miller (2000) considered creativity as another fitness indicator, specifically as a signal of high intelligence. He also argued that aspects of emotional competence like empathy evolved via sexual selection as good-genes, good-parenting or good-partner indicators (Miller, 2007). In his sexual strategies theory, Buss proposed that contextual factors and sex influence what people are attracted to (for a current review see Buss & Schmitt, 2019). The theory posits that there are several mating strategies, including short-term (ST) mating, like one-night stands, and long-term (LT) mating, which is typically characterized by high commitment. Demands in a potential partner should differ between ST and LT strategies. Additionally, since men and women faced different adaptive challenges, they should also differ in their mating strategies. As an example, both sexes might prioritize good-partner and good-parent qualities (e.g., intelligence and emotional stability) in a LT partner, whereas particularly men might lower their standards and put more emphasis on physical attractiveness (PA) in the ST context (Buss & Schmitt, 2019).

1.2. The appeal of abilities in the ideal partner

When asked about their ideal partner, people often name intelligence as one of the most relevant traits. In a large, international study, intelligence was ranked as a potential mate's second-most important characteristic, right after kindness (Buss et al., 1990). Many studies essentially replicated these results (e.g., Buss et al., 2001; Gignac et al., 2018; Goodwin & Tinker, 2002). In a study by Kenrick and colleagues (1990), people reported that their partners for single dates should be at least of average intelligence and demands for high intelligence rose with higher levels of involvement. Only for sexual encounters did men rate below average intelligence as acceptable and, in that, were more lenient than women. According to Regan and colleagues (2000) the reported optimal level of intelligence in a partner is high for sexual encounters and even higher for serious relationships. In a large, recent study across 45 countries, Walter and colleagues (2020) found a general preference for highly intelligent partners, with women desiring slightly higher intelligence than men. This is in line with sex differences in the rated relevance of intelligence: Women judge a potential long-term partner's intelligence as more important than men; men, on the other hand, place more weight on attractiveness than women (Schwarz & Hassebrauck, 2012). Li and colleagues (2002) restricted the extent to which a hypothetical partner could possess positive traits and found that women emphasized high intelligence over other characteristics, while for men intelligence came second after PA (Li et al., 2002). The authors concluded that for men high PA in a partner is a necessity and other characteristics are only considered once it is fulfilled (see also Lee et al., 2014). Women – and to a lower degree also men – prioritized high intelligence in their partners, even if that meant that they had to lower their demands regarding other characteristics. But the desire for high intelligence is not without limits: Gignac and colleagues (2018; 2020) found intelligence only to be increasingly appealing up to a certain threshold – according to their estimate around the 90th percentile or an IQ of about 120.

There is also some empirical support that people are attracted to highly creative and emotionally competent partners, albeit these abilities have received less scientific attention. In the early cross-cultural study by Buss and colleagues (1990), creativity was ranked some places behind intelligence but was still widely sought-after. Emotional stability and sociability, which can be viewed as parts of emotional competence, were also viewed as very important. Especially women – but also men – want a high minimum level of emotional stability in a partner, particularly for longer relationships (Kenrick et al., 1990). In the same study, demands for creativity were lower but also rose with longer relationships. The optimal level of creativity people seek in partners for sexual and serious relationships is above average (Regan et al., 2000). Recently, Gignac and Callis (2020) showed that people rated high – but not necessarily very high – emotional intelligence most desirable in a

prospective partner. Indeed, concerns about potentially low emotional intelligence were among the most common reasons participants named for not wanting their partner to be too intelligent.

Overall, there is considerable evidence that particularly intelligence but also creativity and emotional competence are desirable in an ideal hypothetical partner. However, past work has also shown that mate preferences like these do not necessarily relate to actual desire in real-life dating contexts (Eastwick & Finkel, 2008). Are more intelligent, creative, and emotionally competent people truly more desirable real-life partners?

1.3. The appeal of abilities in an actual potential partner

A small number of studies have investigated how desirable people find cognitive abilities in actual potential partners. We review these results in the context of those on PA, which often outperformed both cognitive and non-cognitive traits as predictors of mate appeal (e.g., Asendorpf et al., 2011; Fisman et al., 2006; Jauk et al., 2016; Prokosch et al., 2009). Fisman and colleagues (2006) organized a speed dating and predicted mate choices (i.e., whether participants wanted to meet a person again) from ratings of intelligence and PA. While rated intelligence was generally a positive predictor of being chosen, this was moderated by sex: Women put more weight on rated intelligence than men. Conversely, men put more weight on rated attractiveness. Sex differences in the mate appeal of intelligence and PA were also found in another speed-dating study (Karbowski et al., 2016): Women's higher rated intelligence was actually associated with being chosen less often, unless they were also highly attractive at the same time. Unattractive but intelligent men, on the other hand, still had a good chance of being chosen for a second date.

Most studies in this area have not used objective performance measures but relied on subjective ability perceptions instead, which is potentially problematic (see also Driebe et al., 2020). Correlations between perceived and objectively measured abilities are mostly only low to moderate. This has not only been found for ability ratings by strangers (Borkenau et al., 2004; Borkenau & Liebler, 1993; Carney et al., 2007; Denissen et al., 2011) but also for those by parents, teachers (Sommer et al., 2008; Steinmayr & Spinath, 2009), and even people themselves (Neubauer et al., 2018; Neubauer & Hofer, 2020, 2021a; Zell & Krizan, 2014). Importantly, low correlations between perceived and measured intelligence were also reported in a speed-dating study (Driebe et al., 2020). What is more, when abilities and mate appeal are rated by the same person, this might introduce transfer effects (see also Driebe et al., 2020): If people have a generally positive impression of a someone, they tend to attribute them various other positive characteristics, including high intelligence and high desirability as partner. The existence of this so-called halo error was already proposed by Thorndike (1920). Particularly people with high PA might be assigned other socially desirable attributes whether they actually possess them or not (Langlois et al., 2000). Thus, while research using subjective ability perceptions clearly answers important questions (e.g., Am I

attracted to someone that I think of as highly intelligent?), it likely cannot tell us whether a person's intelligence or other abilities are attractive in themselves.

Prokosch and colleagues (2009) conducted one of the few studies on mate preferences that also included the psychometrically measured intelligence. They let women rate men's mate appeal after having seen videos of them performing different tasks. Men's intelligence was positively associated with their ST and LT mate appeal but only explained about 3% of variance each. Intelligence perceptions by women showed significant overlap with measured intelligence. While intelligence perceptions also explained only about 3% of variance in ST mate appeal, this rose to about 13% for LT mate appeal. In comparison, PA alone explained 40% of variance in LT mate appeal and 59% in ST mate appeal. These results support women's attraction towards intelligence but they also emphasize that subjective perceptions of intelligence do not necessarily behave like objective measures when it comes to mate appeal (see also the recent preprint by Driebe et al., 2020).

So far, extant research only investigated the appeal of one very particular intelligence facet (verbal intelligence; Prokosch et al., 2009) or of general intelligence (Driebe et al., 2020). But Aspara and colleagues (2018) argued that different types of intelligence could have different effects on mate appeal: The potentially easier-to-perceive verbal intelligence might already be relevant in the first interactions with a potential partner, while the likely harder-to-observe numerical and logical intelligence might only become important at later stages. Accuracy research showed that people might indeed struggle more when judging some abilities than others. For example, peer-ratings of verbal and particularly numerical intelligence showed higher correlations with respective performance than those of spatial intelligence (Neubauer et al., 2018). However, it is unclear whether these results can be translated to perceptions at first romantic encounters and whether differences in accuracy map onto differences in mate appeal.

It appears that to this date there is no published research on how a person's measured creativity or emotional competence is related to their mate appeal. Apart from the findings on hypothetical mate preferences reviewed above, there are reasons to believe that these abilities are desirable in a prospective mate. Creativity was argued to be an indicator of intelligence and, therefore, likely related to mate appeal (Miller, 2000). Indeed, Griskevicius and colleagues (2006) found that people – particularly men – performed better in creative tasks when primed with ST or LT mating-goals, leading the authors to conclude that creative displays could be similar to a peacock's feathers in attracting mates. In another set of experiments, Watkins (2017) found that highly creative responses to a task could compensate for the effects of low PA on overall attractiveness ratings. Finally, in Prokosch and colleagues (2009), perceptions of men's creativity accounted for 18% of variance in their ST mate appeal and 27% of variance in their LT mate appeal. As reviewed above, emotional stability, sociability, and other facets of emotional competence are also valued in

hypothetical partners. Besides, there is considerable evidence that emotional competence is associated with better LT relationships (Malouff et al., 2014; Schröder-Abé & Schütz, 2011). Therefore, it would be plausible that emotionally competent people make for more desirable partners. Nevertheless, empirical tests of this proposition appear to be still missing.

In summary, the literature on the appeal of different intelligence facets, creativity, and emotional competence in actual potential partners is sparse. While there is some support that intelligence might be appealing in real-life partners, results are mixed, particularly when compared to the consistent findings on hypothetical partners. Additionally, conclusions are often limited to subjective perceptions instead of objective measures of these abilities, only male targets or situations that have little resemblance with real-life dating.

1.4. The present study

In the present study, we aimed to extend the existing body of research in several ways: We investigated whether different objectively measured abilities predict mate appeal. Instead of relying on one general or specific intelligence measure, we included verbal, numerical, and spatial intelligence to see if these facets show distinct associations with mate appeal. We assessed creativity, so far having only been measured via subjective perceptions, with a divergent thinking task. Finally, we included measures of intra- and interpersonal emotional management abilities – the abilities to manage one’s own emotions and the emotions of others, respectively. We further assessed subjective perceptions of the same abilities. Thus, we could investigate what people are more drawn to: How competent a potential partner truly is or their own beliefs about that person’s abilities.

Moreover, we aimed to examine mate appeal in a naturalistic setting and, therefore, used the speed-dating paradigm, which allows for genuine interactions between individuals with the prospect to see each other again (Finkel et al., 2007). This paradigm has been successfully applied for many research questions on interpersonal perception (e.g., Hopwood et al., 2021; Kerr et al., 2020) and attraction (e.g., Asendorpf et al., 2011; Berrios et al., 2015; Jauk et al., 2016). Yet, speed-dating studies on the appeal of actual abilities are still rare (but see Driebe et al., 2020). Data acquisition in the context of heterosexual speed dating further enabled us to explore potential sex differences in the associations between abilities and mate appeal. Additionally, we differentiated between ST and LT mate appeal, allowing us to test the proposition that the characteristics preferred by men and women differ depending on the temporal context (see Buss & Schmitt, 2019).

1.4.1. Research questions and expectations

Our first research question refers to whether a person’s (target) objectively measured abilities can predict their short-term (ST) and long-term (LT) mate appeal to a perceiver. We expected that all

three types of intelligence (in the following “intelligence”) would predict men’s ST and LT mate appeal to women. Women’s intelligence should predict their LT mate appeal to men. We based these predictions on research that showed that both sexes prefer high intelligence in their LT partner but men have lower demands regarding intelligence in the ST context (e.g., Kenrick et al., 1990). Moreover, based on findings that women view intelligence also as more important in a LT partner than men do (e.g., Schwarz & Hassebrauck, 2012), we expected a moderation by sex with higher effects of men’s intelligence on their LT mate appeal. Past research indicated that creativity might be relevant in ST and LT contexts for both sexes (Griskevicius et al., 2006). Therefore, we expected men’s and women’s creativity to predict their ST and LT mate appeal. Finally, since (inter- and intrapersonal) emotional competencies might be especially important in LT relationships, we expected them to predict LT mate appeal for both men and women.

Our second research question concerns the role that physical attractiveness (PA) plays in mate appeal compared to abilities. PA was the most important predictor of mate appeal in past studies (e.g., Prokosch et al., 2009). We, therefore, tested the robustness of all ability-based findings by controlling for the target’s PA. Additionally, we expected sex to moderate the relationship between PA and LT mate appeal: In line with research showing that, while both sexes see PA as important in ST partners, men value it more than women in the LT context (e.g., Li et al., 2002), we predicted that PA would show higher associations with women’s LT mate appeal than with men’s. Some research suggests that for men a certain level of PA is a necessity in potential partners before they consider other characteristics like intelligence (Lee et al., 2014; Li et al., 2002). Karbowski and colleagues (2016) proposed that for women with low PA, high intelligence might even be detrimental to their mate appeal. Based on this, we assumed that women’s PA would moderate the relationship between their intelligence and their LT mate appeal, with a lower association between mate appeal and intelligence at lower PA.

Since most existing studies on the appeal of intelligence and other abilities relied on subjective ability perceptions, our third research question focused on the role of these perceptions. We further analyzed how well subjective and objective ability measures performed in predicting mate appeal when entered into the same analysis. We had no specific expectations for this research question.

2. Methods

We report how we determined our sample size, all data exclusions, and all measures in the study (Simmons et al., 2012). This study was preregistered. While conducting the study, analyzing the data, and writing the manuscript, we noticed a small number of methodological shortcomings of our preregistration. The preregistration, a list of deviations from it, and further supplementary information can be found in our OSF-project

(https://osf.io/3wtvf/?view_only=22170efe198945ce88365d32118dbab3).

2.1. Participants

Based on sample size recommendations for social relation models with asymmetric block designs (Kenny et al., 2006) and practical considerations about the speed-dating events, we aimed to collect data from 180 participants. Due to expected dropouts between the different data collection sessions (see procedure), registration was open for 210 people (105 men, 105 women). In the end, 90 women and 90 men attended one of seven speed-dating events. There, they met between 11 and 14 members of the opposite (self-reported) sex, amounting to a total of 1157 interactions. Each encounter was followed by the completion of a score card containing questions on the respective speed-dating partner, leading to 2314 ratings. We excluded data from five participants prior to analyses: one person showed low compliance, two reported being homosexual, and another two had incomplete data on performance measures. Hence, the final sample consisted of 175 participants (87 female) between 18 and 30 years (which were also the age limits; $M = 22.51$, $SD = 2.81$) who met each other at a total of 1094 dates (2188 ratings). 89.71% were university students with about half of them studying psychology. 92% reported being heterosexual and the remaining participants reported being bisexual or being uncertain about being solely heterosexual. While 166 were single, four were in an open relationship, and another five stated that they were in a monogamous relationship¹.

2.2. Procedure

This study is part of a larger project with a multi-step data collection process: Participants first registered via an online survey and – for an unrelated research question – provided the contact of a close acquaintance to complete questionnaires about the participant. The data pertinent to the present research were then collected in performance-testing sessions and, finally, during the speed-dating events. The study procedure was approved by the local ethics committee.

2.2.1. Pre-event performance testing

Prior to the speed-dating events, participants took part in one of 14 same-sex performance-testing sessions in groups of between 5 and 25. After providing their informed consent, participants completed timed paper-pencil tests of their verbal, numerical, and spatial intelligence (Liepmann et al., 2007). We presented the remaining measures – first a test on creativity (Benedek et al., 2013; Guilford, 1967) and then one on emotional management abilities (Freudenthaler & Neubauer, 2005) – in computerized form. This was followed by questionnaires that are not relevant to the research questions discussed in this paper (for a full list of measures see OSF).

¹ We kept these participants in our sample to preserve power because most of them stated that they wanted to meet others again. Their mean ratings on mate-appeal variables were also comparable to participants who were single.

2.2.2. Speed-dating procedure

Each participant attended one of seven speed-dating events that took place in a baroque chateau on campus (the Meerscheinschlössl). Women and men entered the building through separate entrances and waited in different areas to avoid any contact before their dates. Upon arrival, we provided participants with a code to be worn visibly on their shirt and took their picture for external attractiveness ratings (see 2.3.3). They were then verbally instructed about the procedure of the speed dating and how to complete the score cards (i.e., one-page questionnaires to fill in after each date). Men entered the main hall first, where we had already dimmed the lights and were playing smooth jazz at a low volume to provide a relaxed atmosphere. There were 15 speed-dating booths, separated from each other by partition walls. Each booth contained a table and two chairs, with another set of tables being located opposite to the booths. Men sat down at these tables, with their backs towards one of the booths. Next, women entered the hall and sat down in the booths. The experimenters rang a bell to signal that all men should turn around, thus starting the first date. The speed-dating partners then had 3 minutes to get to know each other. Afterwards, they were alerted by another bell indicating that men should return to their tables so that both parties could complete the score card in private. When all participants had finished, men rotated to the next booth. We repeated this process until all attendees had met every member of the opposite sex (between 11 and 14, depending on the session).

2.3. Measures

2.3.1. Objective performance measures

Intelligence was measured with parts of the well-established Intelligenz-Struktur-Test 2000 R (Liepmann et al., 2007) across three facets: Verbal intelligence was measured with the subtest *similarities*, numerical intelligence with *number series*, and spatial intelligence with *figure selection*. We followed the instructions and time limits proposed by the test authors. While the subtests for numerical ($\alpha = .87$) and spatial intelligence ($\alpha = .77$) showed good internal consistency, reliability evidence was lower for verbal intelligence ($\alpha = .55$).

Creativity – or more precisely creative potential – was measured with a computer-based version (Jud, 2018) of the Alternative Uses Task (Benedek et al., 2013; Guilford, 1967). Participants had 2.5 minutes (per object) to find creative uses for a *plastic bottle*, an *umbrella*, and a *shoe* with the instruction to “find creative ideas that other people would consider original, clever, unusual, interesting, or humorous”. Task performance was scored with respect to ideational fluency and originality. Fluency reflected the average number of responses per task. The originality of the generated ideas was rated on a scale from 0 (not creative) to 3 (very creative) by six independent, non-expert raters (2 men, 4 women), who previously had completed a short rater training (see also

Benedek et al., 2017). Inter-rater reliabilities were high ($\alpha_{\text{bottle}} = .86$, $\alpha_{\text{umbrella}} = .86$, $\alpha_{\text{shoe}} = .88$). Originality was defined as the average rating of the three most original ideas per object to reduce the potentially confounding influence of fluency (Benedek et al., 2016, 2017; Smeekens & Kane, 2016). Fluency and originality scores were averaged across the three tasks. Internal consistency was satisfactory for both originality ($\alpha = .76$) and fluency ($\alpha = .89$).

We measured intra- and interpersonal emotional management abilities with the typical-performance emotional management test (TEMT; Freudenthaler & Neubauer, 2005). In this test, participants read descriptions of emotionally laden situations (18 requiring intrapersonal and 24 requiring interpersonal emotional management) and then select one of four potential reactions with the instruction to choose the response closest to how they would typically react. Each response corresponded to a score between 1 (least adequate) to 4 (most adequate), as established by expert consensus (Freudenthaler & Neubauer, 2005). Situational judgement tests like the TEMT are inherently heterogeneous (Libbrecht & Lievens, 2012; McDaniel et al., 2007) and, thus, often associated with low internal consistency (MacCann & Roberts, 2008; McDaniel et al., 2007; Neubauer & Hofer, 2021a). The same was true in the present study (intra: $\omega_t = .60$; inter $\omega_t = .57$). However, a recent investigation has reported evidence of good test-retest reliability – which is a more suitable reliability indicator for situational judgment tests (e.g., McDaniel et al., 2007) – for both the intra- ($r_{tt} = .83$) and interpersonal ($r_{tt} = .76$) subscale of the TEMT (Neubauer & Hofer, 2021b).

2.3.2. Speed-dating score cards

After each speed-dating encounter, participants completed a score card about their respective partner (see also Asendorpf et al., 2011; Jauk et al., 2016). It started with two questions regarding prior acquaintance (“Have you already met this person?” and “Do you know this person personally?”) that we used to exclude previously acquainted dyads. From the remaining questions, only those pertaining to the partner’s perceived abilities and mate appeal are relevant for the current research. Perceptions of the partner’s verbal, numerical, and spatial intelligence, creativity, and intra- as well as interpersonal emotional management abilities were assessed with one question each (e.g., “I think this person is generally talented in the creative domain.”) with response options ranging from *does not apply* (1) to *applies exactly* (5). Two questions on the partner’s short-term mate appeal [“How much would you like to have a short-term relationship (e.g., a sexual affair, a one-night-stand, friends-with-benefits, etc.) with this person?”] and long-term mate appeal [“How much would you like to have a long-term relationship with this person?”] were answered on a scale ranging from *not at all* (1) to *a lot* (5). Finally, participants were asked whether they would like to meet the partner again (yes/no; mate choice as behavioral outcome). If both parties replied with a yes, the experimenters sent them each other’s contact details after the events. This was the case for 150

dyads out of 1094 dates (13.71%). The full score card including further items on humor, PA, likability, and certainty about ability estimates can be found on the OSF.

2.3.3. Physical attractiveness

As PA ratings from the score cards were likely confounded with other variables like likeability (see also Jauk et al., 2016), ten external raters evaluated PA. To this end, at the beginning of speed-dating events, participants were photographed under standardized lighting conditions with the instruction to show a neutral facial expression. We presented these pictures in computerized form to five men and five women. Presentation was carried out in two blocks – one per sex – with counterbalanced order (male or female targets first). At the beginning of each block, all pictures were presented for a short period so that raters could get an overview. Within each block, the order of target pictures was randomized. Raters were instructed to respond intuitively, set aside any personal preferences, and not base their judgment on whether the target smiled or not. PA was then rated on a scale from *not attractive at all* (0) to *very attractive* (5). We excluded ten ratings for which the raters disclosed that they had previously met the target. The intraclass correlation for the average rater with rater as random factor was good [ICC(174, 1566) = .90, 95% CI [.87, .92], $p < .001$]. The mean PA rating across all external raters showed a strong correlation with speed-dating PA ratings ($r = .7$) but only a small correlation with likeability ratings from speed dating ($r = .2$), whereas speed-dating PA ratings correlated highly with likability ratings from the score cards ($r = .53$). This confirmed our decision to use externally rated PA in our analyses (for correlations of speed-dating ratings of PA, likability, and funniness with all main variables see Table 1).

2.4. Analysis strategy

Data from speed-dating designs have a complex, hierarchical structure with inherent nonindependence (Ackerman et al., 2015). In heterosexual speed dating, each person from one of two groups – men and women – interacts with and provides ratings about everyone from the other group at a given test session. This type of design is called asymmetric block design and can be analyzed within the social relations model (SRM; Kenny et al., 2006). The SRM allows for the partitioning of variance in speed-dating variables into three parts: Perceiver variance refers to the perceivers' general tendencies to provide low or high ratings. Target variance represents the extent to which the same targets are seen similarly by different perceivers and, thus, represents a form of consensus. Relationship variance refers to the variance that is specific to a given perceiver-target dyad; it can only be separated from error variance, if the variable of interest is measured with multiple items. One can also derive corresponding effect scores for each person: While the perceiver effect indicates how a person views everyone else (e.g., Jane might view her dates very positively.), a person's target effect represents how they are seen by all others (e.g., Joe might generally elicit a

positive reaction from all his dates.). Finally, the relationship effect refers to how someone is uniquely seen by another person (e.g., Jane might be particularly attracted to Joe, beyond her general tendency to see everyone as attractive, and beyond Joe's general tendency to be seen as attractive.).

The main effects of interest in the present study were the target effects for ST and LT mate appeal, which we aimed to predict from the target's abilities. We followed the recommendations by Ackerman and colleagues (2015) on how to use multilevel modeling (MLM) in IBM SPSS for SRM with speed-dating data. In separate MLMs, we entered the target's respective characteristics (objectively measured abilities, speed-dating ability ratings, and physical attractiveness) as person-level predictors of target effects for ST and LT mate appeal. Due to the characteristics of the asymmetric block design – speed-dating participants only rate members of the other sex but not of their own – we performed parameter estimation separately for men and women. We tested sex as potential moderator in additional moderation analyses. To obtain standardized coefficients, we z-transformed all individual level and speed-dating variables. Before conducting the analyses, we removed ratings from 55 encounters, for which at least one of the two partners indicated to know the other.

3. Results

3.1. Descriptive statistics and intercorrelations

Table 1 displays descriptive statistics and intercorrelations for men and women separately. All speed-dating variables represent the mean per target over all perceivers. Looking at the standardized mean gender differences, it becomes apparent that women received higher ratings on both mate appeal variables, with large effects in both cases. Women also received a higher percentage of yesses (mate choice) than men. Moreover, both the external raters and the speed-dating partners judged female participants as more attractive than the male participants. While there was little evidence for sex differences in objective performance measures – apart from men's higher numerical intelligence and intrapersonal emotional competence – speed-dating perceptions displayed sex differences in all domains: Women were seen as more verbally intelligent, creative, and emotionally competent (on both subscales), while men were perceived as more numerically and spatially intelligent. The majority of intercorrelations between objective ability measures were moderate at the most. In contrast, some of the speed-dating estimates on different domains correlated highly. Most notably, ratings of numerical and spatial intelligence correlated at around .8. Intercorrelations between rated ST and LT mate appeal but also mate choice were similarly high (see also Driebe et al., 2020). Thus, being generally seen as desirable for one type of relationship was highly associated with desirability for the other type of relationship as well as with receiving a high percentage of requests for another date.

Table 1*Descriptive Statistics and Intercorrelations of Study Variables per Sex with Cohen's ds for Sex Differences*

Variable	Min-Max	M (SD)	<i>d</i> [95% CI]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 PA (external)	0.00-4.40 0.11-4.60	2.01 (1.01) 2.41 (1.03)	0.40 [0.10; 0.70]		.04	.16	-.13	.13	-.09	-.10	.12	.23	-.18	-.13	.27	.27	.28	.20	.59	.08	.61	.35	.46
2 Verbal intelligence	5.00-18.00 4.00-18.00	11.81 (2.83) 11.87 (2.61)	0.02 [-0.27; 0.32]	-.10		.29	.16	.04	.19	-.20	.20	.09	.01	-.08	-.03	.13	.15	.06	.01	.06	-.04	-.09	.06
3 Numerical intelligence	3.00-20.00 2.00-20.00	15.49 (4.35) 13.76 (4.47)	-0.39 [-0.70; -0.09]	.03	.17		.24	.17	.14	.10	.26	.07	.11	.00	-.12	.09	.05	.14	.17	.13	.07	.03	.09
4 Spatial intelligence	3.00-19.00 1.00-20.00	11.94 (3.97) 10.91 (4.08)	-0.26 [-0.56; 0.04]	-.05	.23	.33		-.08	.10	-.05	-.01	-.14	.35	.31	-.15	-.17	-.14	.08	.02	.09	-.08	-.08	.01
5 Ideational fluency	2.75-20.33 2.71-14.00	7.44 (2.86) 6.82 (2.40)	-0.23 [-0.53; 0.06]	.26	-.01	-.01	.01		.22	.06	-.07	.15	.01	-.07	.02	.09	.15	.01	.14	-.02	.07	.04	-.04
6 Originality	0.98-2.26 0.88-2.13	1.59 (0.28) 1.59 (0.24)	-0.03 [-0.33; 0.27]	.21	.10	.08	.22	.27		-.01	.08	.25	.05	.10	.18	.06	.00	.09	.01	.09	-.12	.01	-.02
7 Intrapersonal EMA	2.61-3.78 2.22-3.67	3.34 (0.28) 3.12 (0.29)	-0.78 [-1.10; -0.46]	.20	-.03	.01	.04	.02	.15		.28	.13	.11	.15	.06	.11	.14	.10	.08	.18	.04	.10	.02
8 Interpersonal EMA	2.38-3.75 2.38-3.71	3.20 (0.28) 3.24 (0.23)	0.15 [-0.15; 0.44]	.02	.11	.18	.11	.03	.16	.36		.18	-.09	-.11	.10	.16	.12	.17	.07	.25	.13	.20	.16
9 SD verbal intelligence	2.27-4.50 2.83-4.83	3.68 (0.47) 3.83 (0.38)	0.34 [0.04; 0.64]	.22	-.05	.06	-.06	.01	.26	.30	.19		-.16	-.14	.48	.72	.70	.57	.52	.55	.40	.46	.43
10 SD numerical intelligence	2.50-4.73 2.54-4.42	3.71 (0.53) 3.21 (0.38)	-1.08 [-1.42; -0.74]	-.01	.03	.15	.05	.02	-.02	-.04	-.05	-.16		.83	-.44	-.42	-.18	.06	-.05	.18	-.07	.05	-.01
11 SD spatial intelligence	2.62-4.67 2.46-4.17	3.55 (0.40) 3.12 (0.31)	-1.20 [-1.55; -0.85]	-.03	.07	.10	.13	.05	.02	.08	.01	-.03	.75		-.29	-.37	-.15	.03	.01	.13	-.04	.06	.02
12 SD creativity	1.82-4.86 2.83-4.46	3.31 (0.57) 3.61 (0.38)	0.61 [0.30; 0.92]	.17	-.06	-.06	.02	.11	.11	.11	-.03	.30	-.32	-.20		.53	.39	.26	.34	.14	.36	.28	.30
13 SD intrapersonal EMA	2.27-4.15 2.77-4.33	3.39 (0.40) 3.60 (0.30)	0.58 [0.27; 0.89]	.36	.05	.13	.00	.06	.28	-.04	.03	.39	-.08	-.10	.39		.83	.61	.59	.50	.50	.46	.49
14 SD interpersonal EMA	2.18-4.73 2.54-4.73	3.71 (0.52) 3.86 (0.42)	0.33 [0.03; 0.63]	.21	-.02	.16	-.09	.02	.24	.03	.15	.50	-.15	-.09	.38	.75		.77	.68	.71	.58	.57	.59
15 SD funniness	2.18-4.50 2.50-4.73	3.54 (0.53) 3.68 (0.45)	0.30 [0.00; 0.60]	.18	-.14	.15	-.08	.05	.22	.05	.01	.53	.13	.23	.30	.48	.62		.60	.83	.57	.61	.61
16 SD PA	1.45-4.33 1.85-4.77	2.93 (0.63) 3.48 (0.68)	0.85 [0.52; 1.17]	.77	-.11	.04	.01	.36	.28	.20	-.01	.39	.14	.17	.26	.49	.41	.40		.51	.87	.76	.76
17 SD likability	2.54-4.82 2.58-5.00	3.94 (0.42) 4.02 (0.39)	0.21 [-0.09; 0.51]	.29	-.14	.08	-.04	.00	.24	.19	.08	.56	.21	.29	.34	.58	.65	.76	.56		.48	.61	.55
18 SD ST mate appeal	1.00-3.67 1.46-4.67	1.91 (0.57) 2.95 (0.73)	1.60 [1.22; 1.97]	.65	-.07	.09	.05	.25	.23	.11	-.04	.34	.16	.18	.17	.53	.44	.39	.91	.56		.77	.76
19 SD LT mate appeal	1.00-3.08 1.15-4.42	1.94 (0.46) 2.60 (0.66)	1.16 [0.81; 1.50]	.61	-.14	.07	-.05	.25	.28	.22	.08	.48	.23	.28	.23	.55	.51	.55	.87	.74	.83		.82
20 SD mate choice (%)	0.00-0.83 0.00-1.00	0.27 (0.20) 0.54 (0.24)	1.21 [0.86; 1.55]	.59	-.12	.03	-.03	.18	.27	.23	-.01	.43	.24	.32	.22	.48	.46	.51	.86	.72	.85	.92	

Note. Values for men ($n = 88$) are at the top/above the diagonal and values for women ($n = 87$) are at the bottom/below the diagonal. A positive Cohen's d indicates higher values for women than for men. Values for all speed-dating variables ("SD") are averaged across perceivers per target. All $r \geq .21$ would be statistically significant at $p < .05$ (two-tailed). All $r \geq .34$ would be statistically significant at $p < .001$ (two-tailed). PA = Physical attractiveness; EMA = Emotional Management Abilities; ST = Short-Term; LT = Long-Term.

3.2. Social relations modeling

Before conducting our primary analyses, we assessed whether the SRM variances were significantly different from zero for both mate appeal variables. There was significant perceiver and target variance in both ST and LT mate-appeal ratings by both sexes (see Table 2). Between 11.93% and 21.79% of variance in mate-appeal ratings could be attributed to characteristics of the target, while between 24.05% and 32.37% were accounted for by perceiver components. Note that no significance tests were reported for relationship and error variance, since those tests are not informative when the two components cannot be separated (Ackerman et al., 2015).

Table 2

SRM Variance Partitioning for Short-Term and Long-Term Mate Appeal

Variables	Percentage of variance in mate appeal accounted for by SRM component			
	Perceiver	Target	Relationship + error	Total variance
Short-term mate appeal				
M → W	32.37**	21.79**	45.84	1.94
W → M	24.05**	20.92**	55.03	1.30
Long-term mate appeal				
M → W	31.86**	16.66**	51.48	1.79
W → M	31.62**	11.93**	56.45	1.27

Note. M → W = men rating women; W → M = women rating men. As an example, the first row reads: The variance in men's ratings of women's short-term mate appeal consisted of 32.37% perceiver variance (men's characteristics), 21.79% target variance (women's characteristics), and 45.84% relationship and error variance. SRM = social relations model. ** $p < .001$ in the Wald tests.

In line with past speed-dating studies (e.g., Jauk et al., 2016), we also computed two types of reciprocity correlations: generalized and dyadic reciprocity. Generalized reciprocity represents the association between the perceiver and target effects of a person. Generalized reciprocity correlations were all slightly negative – meaning that someone who had a tendency towards seeing others as desirable was not perceived as desirable themselves – but did not reach statistical significance for ST (female perceivers: $r = -.176$, $p = .175$; male perceivers: $r = -.056$, $p = .665$) or LT (female perceivers: $r = -.178$, $p = .176$; male perceivers: $r = -.089$, $p = .527$) relationships. Dyadic reciprocity refers to the association between a specific dyad's relationship effects. It was only significant for LT mate appeal ($r = .106$, $p = .001$; ST mate appeal: $r = .027$, $p = .43$): Someone, who reported being particularly interested in having a LT relationship with a specific person, also received a similarly positive rating by them.

3.3. Research question 1: Do objectively measured abilities predict ST and LT mate appeal?

We expected that all objectively measured abilities would predict mate appeal, with slightly different expectations for men and women regarding their ST and LT mate appeal. To test this research question, we entered the respective objective performance variables as person-level predictors into separate MLM analyses for each ability category (intelligence, creativity, emotional competence) and relationship type (ST and LT appeal). Table 3 shows that we could not confirm most of our expectations. No intelligence facet predicted a target's appeal for any type of relationship, with only the numerical intelligence of female targets showing what some might call a trend towards higher LT mate appeal ($p = .073$; all other $p \geq .116$). Non-significant effects also emerged for both types of emotional competence (all $p \geq .141$). Only women's creativity – when operationalized as ideational fluency – significantly predicted how appealing they were to men for both ST ($p = .008$) and LT relationships ($p = .044$): More creative women were more desirable partners. Originality showed similar – but slightly smaller and non-significant ($ps = .063 - .071$) – effects. No objectively measured ability predicted men's mate appeal (all $p \geq .148$).

Table 3

Standardized Multilevel Modeling Estimates of Target Effects of Short-Term and Long-Term Mate Appeal Regressed on Objective Ability Measures

Objectively measured ability level	Short-term mate appeal				Long-term mate appeal			
	Women		Men		Women		Men	
	β [95 % CI]	p	β [95 % CI]	p	β [95 % CI]	p	β [95 % CI]	p
Model 1								
Verbal intelligence	-.09 [-.21; .03]	.150	-.02 [-.11; .08]	.696	-.09 [-.20; .02]	.116	-.03 [-.11; .05]	.429
Numerical intelligence	.08 [-.05; .21]	.241	.06 [-.05; .16]	.321	.11 [-.01; .23]	.073	.05 [-.05; .14]	.338
Spatial intelligence	.03 [-.09; .15]	.605	-.03 [-.13; .07]	.567	-.04 [-.15; .07]	.445	-.03 [-.12; .05]	.431
Model 2								
Creativity - Fluency	.17* [.05; .29]	.008	.03 [-.06; .12]	.442	.12* [.00; .23]	.044	.01 [-.07; .08]	.875
Creativity - Originality	.11 [-.01; .23]	.071	-.05 [-.14; .03]	.238	.11 [-.01; .22]	.063	.00 [-.07; .08]	.987
Model 3								
Intrapersonal EMA	.10 [-.04; .23]	.155	-.01 [-.12; .10]	.853	.09 [-.03; .22]	.141	.01 [-.08; .10]	.788
Interpersonal EMA	-.07 [-.21; .06]	.282	.04 [-.04; .13]	.330	-.03 [-.16; .10]	.609	.06 [-.02; .13]	.148

Note. β s obtained by z-standardization based on pairwise data for mate appeal variables and personwise data for individual difference variables (see also Jauk et al., 2016); EMA = Emotional Management Abilities; Women/Men refers to the target's sex. * $p < .05$.

The only association between ability level and mate appeal that was significantly moderated by sex was the one between originality and ST mate appeal ($\beta = .08$, 95% CI [.01; .15], $p = .031$). The underlying effects were non-significant for both sexes – the one for female targets is a trend – but different in their height and direction with $\beta = .11$ for female and $\beta = -.05$ for male targets (see Table 3). A similar trend towards moderation materialized only for fluency ($p = .085$; all other $p = .109 - .801$).

3.4. Research question 2: What role does PA play in predicting mate appeal and in its associations with abilities?

Table 4

Standardized Multilevel Modeling Estimates of Target Effects of Short-Term and Long-Term Mate Appeal Regressed on Physical Attractiveness (Model 1) and Physical Attractiveness with Creativity (Model 2)

	Short-term mate appeal				Long-term mate appeal			
	Women		Men		Women		Men	
	β [95 % CI]	p	β [95 % CI]	p	β [95 % CI]	p	β [95 % CI]	p
Model 1								
Physical Attractiveness	.38* [.30; .46]	< .001	.27* [.19; .35]	< .001	.34* [.25; .42]	< .001	.13* [.05; .21]	.002
Model 2								
Physical Attractiveness	.35* [.27; .43]	< .001	.27* [.19; .35]	< .001	.31* [.23; .40]	< .001	.13* [.05; .22]	.002
Creativity - Fluency	.07 [-.02; .16]	.147	.00 [-.08; .07]	.898	.03 [-.06; .13]	.494	-.01 [-.08; .07]	.856
Creativity - Originality	.05 [-.04; .14]	.297	-.03 [-.10; .04]	.372	.05 [-.04; .14]	.293	.01 [-.06; .08]	.738

Note. β s obtained by z-standardization based on pairwise data for mate appeal variables and personwise data for individual difference variables (see also Jauk et al., 2016); Women/Men refers to the target's sex. * $p < .05$.

For RQ 2, we first analyzed how well (externally rated) PA can predict a target's ST and LT mate appeal without ability variables in the model (Model 1 in Table 4). Higher PA was associated with higher ST and LT mate appeal in both sexes (all $ps \leq .002$). As expected, we found a significant moderation by sex for LT mate appeal ($\beta = .10$, 95% CI [.05; .16], $p < .001$): PA was a stronger predictor of women's LT mate appeal. A similar trend was found for ST mate appeal ($\beta = .05$, 95% CI [.00; .11], $p = .065$). We then added PA to the only model previously showing significant associations between abilities – in this case the two creativity measures – and mate appeal (Model 2 in Table 3). After accounting for PA, the effects of fluency on women's mate appeal were no longer significant (all $p \geq .147$; Model 2 in Table 4). Finally, we expected that the association between women's different types of intelligence and their LT mate appeal would be higher at higher levels of PA. Only

one of the respective interaction terms reached significance: The association between women's spatial intelligence and their LT mate appeal was moderated by PA ($\beta = -.10$, 95% CI $[-.19; -.01]$, $p = .024$). However, the direction of this moderation was opposite to what we had expected: The association between women's spatial intelligence and their LT mate appeal was positive at low levels of PA and negative at high levels of PA (for a plot of the interaction see OSF).

3.5. Research question 3: Do perceived abilities predict ST and LT mate appeal?

In our final research question, we were interested whether mate appeal is predicted by how intelligent, creative, and emotionally competent targets were perceived during speed dating. Since the maximum likelihood MLM-approach described by Ackerman and colleagues (2015) has problems with models containing multiple dyadic variables – in our case speed-dating ratings of both mate appeal and abilities – we created individual-level scores of speed-dating ability ratings by averaging over perceivers. Table 5 shows that higher perceived verbal intelligence was associated with both higher ST and LT mate appeal in both sexes. Furthermore, women's perceived numerical intelligence was a positive predictor of their LT mate appeal. Higher perceived creativity was related to higher LT mate appeal for both men and women, as well as, to higher ST mate appeal in male targets, with a similar trend ($p = .065$) for female targets. Women who were seen as more competent in the intrapersonal domain had higher ST and LT mate appeal. For men, on the other hand, higher perceived interpersonal competence was associated with being more desirable for both ST and LT relationships.

Analogous to RQ 1, we also tested sex as potential moderator by including the respective interaction terms. Sex moderated the effect of perceptions of intrapersonal competence on both ST ($\beta = .16$, 95% CI $[.05; .27]$, $p = .005$) and LT mate appeal ($\beta = .12$, 95% CI $[.02; .22]$, $p = .017$) and of perceptions of interpersonal competence on ST mate appeal ($\beta = -.11$, 95% CI $[-.21; -.00]$, $p = .042$). While there was a trend towards moderation for perceived verbal intelligence and LT mate appeal pointing towards higher effects for female targets ($\beta = .06$, 95% CI $[-.00; .12]$, $p = .051$), there were no further significant interactions (all $p \geq .142$).

We also tested whether these effects held when PA was added as control variable. The effects of perceived verbal intelligence remained significant (all $\beta \geq .11$, $p \leq .013$), while women's perceived numerical intelligence was no longer a significant predictor of their LT mate appeal ($\beta = .13$, 95% CI $[-.02; .28]$, $p = .08$). Whereas men's perceived creativity was still a positive predictor of their appeal as ST mate ($\beta = .08$, 95% CI $[.01; .15]$, $p = .029$), the same was no longer true for both sex's LT mate appeal (women: $\beta = .11$, 95% CI $[-.00; .22]$, $p = .056$; men: $\beta = .07$, 95% CI $[-.01; .14]$, $p = .072$). Finally, with PA in the model, women's perceived intrapersonal competence no longer predicted their ST ($\beta = .10$, 95% CI $[-.04; .25]$, $p = .17$) or LT mate appeal ($\beta = .06$, 95% CI $[-.08; .20]$, $p = .371$) but men's

interpersonal competence was still positively related to their appeal for both relationship types (both $\beta \geq .20$, both $p < .001$).

Table 5

Standardized Multilevel Modeling Estimates of Target Effects of Short-Term and Long-Term Mate Appeal Regressed on Ability Perceptions Averaged across Speed-Dating Ratings

	Short-term mate appeal				Long-term mate appeal			
	Women		Men		Women		Men	
	β	p	β	p	β	p	β	p
Perceived Ability Level	[95 % CI]		[95 % CI]		[95 % CI]		[95 % CI]	
Verbal intelligence	.21*	.001	.17*	< .001	.29*	< .001	.17*	< .001
	[.09; .34]		[.08; .25]		[.18; .39]		[.10; .23]	
Numerical intelligence	.12	.313	.01	.861	.21*	.033	.04	.538
	[-.11; .35]		[-.14; .17]		[.02; .40]		[-.09; .17]	
Spatial intelligence	.04	.747	.03	.675	.00	.976	.03	.593
	[-.19; .27]		[-.12; .19]		[-.19; .19]		[-.09; .16]	
Creativity	.14	.065	.13*	.002	.15*	.036	.08*	.024
	[-.01; .30]		[.05; .21]		[.01; .29]		[.01; .15]	
Intrapersonal EMA	.29*	.002	-.03	.592	.22*	.009	-.02	.769
	[.10; .47]		[-.16; .09]		[.06; .39]		[-.12; .09]	
Interpersonal EMA	.05	.555	.27*	< .001	.12	.141	.22*	< .001
	[-.12; .22]		[.15; .39]		[-.04; .27]		[.12; .33]	

Note. β s obtained by z-standardization based on pairwise data for mate appeal variables and personwise data for individual difference variables (see also Jauk et al., 2016); EMA = Emotional Management Abilities; Women/Men refers to the target's sex. * $p < .05$.

Finally, we compared predictive validities of subjective ability perceptions and objectively measured abilities. The respective results for all models containing both types of predictors at the same time can be viewed in Table 6. Most of the significant effects of perceived abilities on mate appeal reported in Table 5 remained significant, with some of them reduced to trends. As for objectively measured abilities, here one of the two previously significant effects depicted in Table 3 remained, while the other became a trend. Overall, we found more – and in many cases, more substantial – significant effects of ability perceptions than of ability per se on mate appeal.

Table 6

Standardized Multilevel Modeling Estimates of Target Effects of Short-Term and Long-Term Mate Appeal Simultaneously Regressed on Objective Ability Measures and Respective Ability Perceptions Averaged across Speed-Dating Ratings

Perceived and Objectively Measured Ability Level	Short-term mate appeal				Long-term mate appeal			
	Women		Men		Women		Men	
	β [95 % CI]	p	β [95 % CI]	p	β [95 % CI]	p	β [95 % CI]	p
Verbal intelligence	-.08 [-.19; .04]	.194	-.03 [-.12; .06]	.532	-.07 [-.16; .02]	.138	-.04 [-.11; .04]	.325
SD Verbal intelligence	.21* [.08; .33]	.002	.17* [.08; .17]	< .001	.27* [.17; .38]	< .001	.17* [.10; .18]	< .001
Numerical intelligence	.03 [-.09; .16]	.615	.02 [-.08; .13]	.694	.04 [-.06; .15]	.398	.02 [-.07; .10]	.683
SD Numerical intelligence	.11 [-.13; .34]	.383	.01 [-.15; .17]	.901	.18 [-.01; .38]	.066	.04 [-.09; .18]	.507
Spatial intelligence	.04 [-.07; .15]	.496	.00 [-.10; .10]	.991	-.03 [-.12; .06]	.537	-.02 [-.10; .06]	.655
SD Spatial intelligence	.04 [-.19; .27]	.725	.03 [-.13; .20]	.701	.02 [-.17; .21]	.842	.03 [-.10; .16]	.647
Creativity - Fluency	.16* [.04; .28]	.010	.04 [-.05; .12]	.396	.11 [.00; .23]	.052	.01 [-.06; .09]	.766
Creativity - Originality	.10 [-.02; .22]	.094	-.08 [-.16; .01]	.067	.10 [-.01; .21]	.086	-.01 [-.09; .06]	.723
SD Creativity	.11 [-.04; .25]	.140	.14 [.06; .22]	.001	.13 [-.01; .26]	.068	.09 [.01; .16]	.023
Intrapersonal EMA	.10 [-.01; .22]	.072	-.04 [-.12; .04]	.350	.10* [.00; .21]	.048	-.01 [-.09; .06]	.701
SD Intrapersonal EMA	.29* [.11; .47]	.002	-.04 [-.17; .09]	.538	.23* [.07; .40]	.006	-.02 [-.13; .08]	.666
Interpersonal EMA	-.08 [-.20; .04]	.188	.02 [-.05; .09]	.645	-.04 [-.15; .07]	.478	.03 [-.03; .09]	.309
SD Interpersonal EMA	.05 [-.12; .23]	.545	.28* [.15; .40]	< .001	.11 [-.04; .27]	.156	.23* [.12; .33]	< .001

Note. β s obtained by z-standardization based on pairwise data for mate appeal variables and personwise data for individual difference variables (see also Jauk et al., 2016); SD = Speed-Dating ability perception; EMA = Emotional Management Abilities; Women/Men refers to the target's sex.

* $p < .05$.

3.6. Exploratory analyses: Mate choice as behavioral outcome

Our preregistered research questions and expectations were focused on the continuous outcomes of perceivers being interested in a short-term or long-term relationship with targets. However, we also obtained data on a binary behavioral outcome: actual mate choices. We saw it as important to test whether our findings from the – still somewhat hypothetical – interest in short- or

long-term relationships with a person generalized to actual mate choices, which could have direct potential real-life consequences for participants. Binary outcomes call for a different data analytical strategy than the one recommended by Ackerman and colleagues (2015). Therefore, we conducted generalized MLMs in R (R Core Team, 2020) using lme4 (Bates et al., 2015) following suggestions by Kluger and Malloy (2019). All code can be found on the OSF.

The overall pattern of results was well in line with our other findings: Out of all objective ability measures, only women's creativity – in that case originality – could significantly predict being chosen for a second date (OR = 1.42, 95% CI [1.04; 1.93], $p = .026$; all other $p \geq .102$). PA was a positive predictor of being chosen for both men (OR = 1.91, 95% CI [1.43; 2.54], $p < .001$) and women (OR = 2.29, 95% CI [1.79; 2.92], $p < .001$) and rendered the effect of originality non-significant ($p = .081$) when included in the same model. Moreover, out of all intelligence facets, PA only moderated effects of women's spatial intelligence on their odds of being chosen (OR = 0.76, 95% CI [0.59; 0.98], $p = .032$; all other $p \geq .152$) – following the same pattern as for LT mate appeal. Both men's and women's perceived abilities in the verbal (men: OR = 1.89, 95% CI [1.43; 2.50], $p < .001$; women: OR = 1.92, 95% CI [1.43; 2.58], $p < .001$) and creative (men: OR = 1.34, 95% CI [1.03; 1.74], $p = .030$; women: OR = 1.48, 95% CI [1.03; 2.13], $p = .036$) domain were associated with higher odds of being chosen. The same was true for women's perceived intrapersonal competence (OR = 1.61, 95% CI [1.04; 2.51], $p = .034$) and men's perceived interpersonal competence (OR = 2.74, 95% CI [1.81; 4.15], $p < .001$). The effects of both sexes' perceived verbal intelligence and men's perceived interpersonal competence remained significant after controlling for PA (all $p < .001$); the effects for perceived creativity and women's perceived intrapersonal competence did not (all $p \geq .096$). Information on SRM variances, reciprocity correlations, and more detailed results can be found on the OSF.

4. Discussion

According to evolution-based theories, people should find intelligence, creativity, and emotional competence desirable in a potential partner (Miller, 2000, 2007). And they do – at least when asked about their ideal partner (e.g., Buss et al., 1990). Moreover, the appeal of intelligence might be different for men and women, with men focusing more on physical attractiveness (PA) instead of intelligence – particularly in the short-term (ST) but perhaps also in the long-term (LT) context (Buss & Schmitt, 2019). Again, this holds true for people's ideas of their ideal partner (e.g., Kenrick et al., 1990). However, research on actual potential partners is sparse. So far, it has mostly focused on the appeal of general intelligence and often relied on subjective ability perceptions instead of psychometrically measured abilities (Fisman et al., 2006; Karbowski et al., 2016; but cf. Prokosch et al., 2009; Driebe et al., 2020). The present study set out to investigate whether a

person's objectively measured intelligence, creativity, and emotional competence can predict how desirable they are for ST and LT relationships.

Our results provided little support for the idea that people are drawn to how competent a person truly is. We expected that all objective ability measures would be related to LT mate appeal, with the three intelligence facets also expected to predict men's ST mate appeal and creativity expected to predict both men's and women's ST appeal. However, only ideational fluency (one of the two measures of creativity) was a significant positive predictor of mate appeal. Moreover, this effect was restricted to female targets. Findings for subjective ability perceptions painted a different picture: All domains but spatial intelligence showed at least one positive association with mate appeal. In combined models, perceptions were more substantial and robust predictors of mate appeal than measured abilities. The effects of ideational fluency and subjective perceptions of some abilities were considerably reduced after including externally-rated PA. Indeed, PA was the most important predictor of initial attraction – a result that is well in line with past research (e.g., Asendorpf et al., 2011; Jauk et al., 2016; Prokosch et al., 2009). Our expectation of PA as stronger predictor of women's LT mate appeal than of men's was confirmed; the prediction that intelligence would play a more important role for men's LT mate appeal than for women's was not. We also found no support that the association between women's intelligence and their LT mate appeal would be more positive at higher levels of PA but instead even some indication that the opposite might be true: At least for spatial intelligence, less attractive women had higher LT mate appeal if they were also more intelligent. This might indicate that women's (spatial) intelligence could compensate for low PA when it comes to mate appeal. It contrasts from suggestions that men only place weight on women's intelligence if a minimum level of PA is met (Lee et al., 2014; Li et al., 2002) or that women's intelligence might even be detrimental for their mate appeal at low PA (Karbowski et al., 2016). Moreover, exploratory analyses on actual mate choices confirmed most of the conclusions drawn from participants' ST and LT mate appeal.

4.1. A detailed look at the appeal of different perceived and measured abilities

The lack of associations between measured verbal, numerical or spatial intelligence and mate appeal in the present study is somewhat surprising given that the fact that the preference for intelligence in hypothetical partners is robust across cultures (Buss et al., 1990; Walter et al., 2020). However, it should be noted that the few studies involving actual potential partners revealed less consistent findings. On the one hand, perceived intelligence showed substantial positive effects on mate appeal, which were moderated by sex (Fisman et al., 2006) or PA (Karbowski et al., 2016). On the other hand, previously reported effects of measured verbal intelligence on mate appeal were relatively small, especially compared to perceived intelligence, perceived creativity, and PA (Prokosch

et al., 2009). A current preprint (Driebe et al., 2020) showed no or even slightly negative effects of measured verbal and general intelligence on mate appeal, again with more substantial positive effects of perceived intelligence and PA. Thus, our results largely conform with the small body of literature on the appeal of measured abilities in actual potential partners.

This study extended past research by looking at different intelligence facets (see also Aspara et al., 2018). The type of intelligence had little importance for the appeal of measured intelligence – we found negligible effects for all three facets. The same could not be said for intelligence perceptions: Perceived verbal intelligence showed robust effects; perceived numerical intelligence was only related to women's LT mate appeal if PA was not included; perceived spatial intelligence bore little relation to mate appeal. The appeal of perceived but not measured verbal intelligence might indicate that targets had mistaken the conversation's general quality with the partner's verbal intelligence, considering good conversations to be due to their partner's high verbal intelligence. Correlations between perceived and measured verbal intelligence were indeed negligible ($r_{\text{women}} = -.05$ and $r_{\text{men}} = .09$). Consistent with this interpretation, past findings indicated that people tend to base their intelligence perceptions on speech-related cues, for example whether the target uses standard speech, which are not necessarily related to measured intelligence (Reynolds & Gifford, 2001). However, it should be noted that all participants had completed a verbal intelligence test themselves and had also been provided with definitions of all abilities they should judge before the speed dating.

A small body of research suggests that emotional competence is desirable in a partner (e.g., Gignac & Callis, 2020). We found mixed evidence in this regard: Zero-order correlations showed small associations of women's intrapersonal emotional management abilities and men's interpersonal emotional management abilities with aggregated LT mate appeal across all perceivers ($r_s \sim .2$). The same pattern of results was also present for ability perceptions on the dyadic level. Men's preferences for women with high intrapersonal emotional management abilities are in line with another speed-dating study that found men – but not women – to be attracted to people with low neuroticism (Luo & Zhang, 2009), which in turn correlates highly with intrapersonal emotional management skills (Freudenthaler & Neubauer, 2005). However, yet another study found no associations between neuroticism and being chosen in speed-dating for men or women (Asendorpf et al., 2011). Importantly, on the dyadic level we also found no significant associations between measured emotional management abilities and mate appeal. Based on these mixed findings, another look at the relevance of emotional management abilities and potential sex differences might be warranted. Furthermore, while the ability to manage one's own and other's emotions might arguably be relevant for well-functioning LT relationships, these are only two of several facets of emotional competence (e.g., Salovey & Mayer, 1990). Future research might, therefore, benefit from investigating how a diverse set of emotional competencies are associated with initial attraction.

Ideational fluency was the only objectively measured ability that predicted mate appeal and originality showed a similar trend. While these effects were in line with our expectations, we had not predicted that they would be restricted to female targets. Our results align with the finding that men viewed a potential female partner's creativity as more important than vice versa (Li et al., 2002), but others reported creativity to be particularly attractive in male compared to female targets (Griskevicius et al., 2006; Watkins, 2017). What is more, Prokosch and colleagues (2009), who only investigated male targets, found perceived creativity to be a strong predictor of men's mate appeal. Our results on perceived creativity are in line with this: Men's perceived creativity predicted their ST and LT mate appeal, with the analogous effects for women only reaching significance in the LT context. Thus, findings in this area appear to depend on how creativity is assessed. To our knowledge, our study was the first to collect data on objectively measured creativity and mate appeal in a real-life context. For this reason, more research might be needed before a definite conclusion on the question of sex differences the appeal of creativity can be reached.

It is interesting to consider why creativity was able to predict mate appeal, when no other objectively measured ability could. One potential explanation that comes to mind is that creativity might be easier to judge during first interactions. However, the correlations between women's perceived creativity and measured originality and fluency were similarly low as accuracy estimates for other abilities. Creativity might also only become indirectly attractive at first encounters: As an example, more creative people were shown to be funnier (see also Kellner & Benedek, 2017) and humor has been associated with higher mate appeal (Driebe et al., 2020). A look at the present study's intercorrelation matrix (Table 1) reveals that women's – but not men's – originality correlated with their perceived funniness, which in turn correlated with both their ST and LT mate appeal. Interestingly, the correlation between women's ideational fluency and their perceived funniness was close to zero, speaking against this reasoning. Another potential explanation could be that more creative people are also seen as more physically attractive and that this shared variance with PA is what drove the effects of creativity. This would be in line with Prokosch and colleagues (2009), who also argued that people "might be equating creativity with sexiness" (p. 18; see also Kaufman et al., 2016). In our study, more creative women were indeed also rated as more physically attractive – not only by speed-dating partners but also by external raters – and (externally rated) PA was the strongest predictor of mate appeal. Consequently, the effect of women's creativity on mate appeal was diminished after we controlled for PA. It is interesting that objective creativity measures correlated with PA-ratings by people, who have never interacted with the targets, and that these effects were restricted to women. Future studies on visual cues of creativity and their attractiveness could shed more light on these effects.

4.2. Implications for research and theories on mate appeal and abilities

If intelligence and other abilities were indeed sexually selected indicators of general fitness, as proposed by Miller (2000, 2007), we would expect them to be related to attraction at first encounters. We found little support for this. Moreover, our results regarding sex differences in the appeal of abilities and PA only partly correspond to sexual strategies theory (Buss & Schmitt, 2019): While men placed more weight on PA than women, the latter did not show a stronger preference for high intelligence. Our results also align only partly with hypothetical partner preferences (e.g., Buss et al., 1990; Schwarz & Hassebrauck, 2012; Walter et al., 2020). Taken together, the role of abilities – and especially that of intelligence – for romantic attraction might have been overestimated in the past, at least when it comes to first interactions.

While our results do not support that objectively measured abilities – perhaps apart from creativity – are attractive at very first, brief interactions, they may become relevant at later stages in the relationship. Miller and Todd (1998) proposed a sequential model, where mate choices are viewed on a temporal continuum from seeing a person for the first time to marriage, with different types of cues being relevant at the different stages. According to these authors, physical cues like PA might be especially relevant at first meetings; intelligence, which takes longer to assess, might only become important at later stages. Since we assessed mate appeal after a brief, first date, our study is located at the very beginning of the continuum and, in that, our results could be in line with Miller and Todd's proposition. In accordance, Gignac and Zajenkowski (2019) found that people's LT romantic partners can provide at least moderately accurate intelligence estimates. Compared with the low accuracy at initial encounters that we found, it appears that – at least in the romantic context – it takes some time to form accurate intelligence judgments. In a large census-based study, Aspara and colleagues (2018) also found that verbal, numerical, and logical intelligence showed small but consistent correlations to men's likelihood of getting and staying married. While we also intended to investigate the effects of abilities on LT mate appeal, this may not be achieved reliably during very short encounters as people have had too little information about one another at that point. A more appropriate test of whether abilities can truly predict LT romantic outcomes would be to conduct a longitudinal study that follows up on speed-dating matches and investigates which of them result in LT romantic relationships (for such projects without inclusion of abilities see Asendorpf et al., 2011; Eastwick & Finkel, 2008).

The positive results of past studies on the desirability of intelligence and other abilities might stem – at least in parts – from an over-reliance on subjective ability perceptions. It could be argued that if a trait is genuinely desirable in prospective mates, it should also be assessable somewhat accurately after short dates. In that case, using subjective instead of objective ability measures might be warranted. However, the correlations between perceived and measured abilities in the present

study were only around .1 for most abilities. While this contrasts from higher correlations reported for zero-acquaintance perceptions in controlled laboratory settings (e.g., Borkenau et al., 2004), it is in line with a recent speed-dating study (Driebe et al., 2020). Correspondingly, Kerr and colleagues (2020) found lower accuracy for ratings after first dates than for those after first platonic interactions. Ability perception at first dates might be particularly influenced by invalid cues, biases, and stereotypes (see also Driebe et al., 2020). Indeed, we found stereotypical sex differences for perceptions – men were seen as much more numerically and spatially intelligent, while women were assigned higher verbal intelligence, creativity, and emotional competence. For the most part, these perceived sex differences were not mirrored in objective measures; in the case of intrapersonal emotional competence, they were even reversed. Moreover, some ability perceptions showed high intercorrelations (e.g., perceived numerical and spatial intelligence correlated at .75 - .83) suggesting an influence of the halo error and other transfer effects (Driebe et al., 2020; Thorndike, 1920).

In line with halo effects, our results also suggest that some of the positive effects of perceived abilities on mate appeal were driven by PA, even when PA was based on external ratings. Past work has shown that highly attractive people are assigned several positive attributes, irrespective of actually possessing them (Langlois et al., 2000; see also Driebe et al., 2020). As can be seen in the intercorrelation matrix (Table 1), this was also the case for the present study: People with higher PA were also judged as more verbally intelligent, creative (only men), and intra- as well as interpersonally competent. When measured objectively, only women's creativity and intrapersonal emotional competence correlated with PA. Consequently, many of the positive associations between perceived abilities and mate appeal were diminished after controlling for PA. We conclude that ability perceptions do not reliably reflect actual abilities, especially when drawn from very short encounters and in potentially romantic contexts. Therefore, we strongly advise against using ability perceptions if one aims to draw conclusions about actual abilities.

A final potential explanation for the discrepancy of the relevance of abilities in hypothetical and actual partner preferences could be that people simply do not know what truly attracts them. Eastwick and Finkel (2008) already raised this problem of low introspection, having found that preferences in the ideal partner hardly predicted what people were looking for in an actual relationship (see also Feingold, 1990). In their recent meta-analysis, Eastwick and colleagues (2014) concluded that hypothetical partner preferences are not entirely unrelated to the evaluation of true potential partners but that their role might depend on several other factors. Therefore, future studies might benefit from including both hypothetical preferences for different abilities and real-life mate preference data.

4.3. Strengths, limitations, and future directions

The present study is one of only a few that investigated associations between abilities and mate appeal in actual potential partners, employing both subjective and objective ability measures. Moreover, we extended previous research by considering various abilities that have previously been suggested as potentially relevant to mate appeal. Using the speed-dating paradigm allowed us to consider mate appeal in the context of real-life first interactions.

Despite these strengths, the present study's findings need to be viewed in light of some limitations. While we planned our sample according to power-based recommendations for SRM designs (Kenny et al., 2006) and could analyze over 2000 ratings, a higher number of participants and dates would inarguably have been more sensitive in detecting very small effects. However, it should be noted that Driebe and colleagues (2020) reported similarly non-significant effects of intelligence on mate appeal in a sample of more than 700. A reexamination of our results—particularly of those for creativity and emotional management abilities—in larger a sample would still increase confidence. As often the case with psychological studies, our sample consisted predominantly of young and highly educated participants, limiting the generalizability of our findings. An overall tendency for high intelligence may also have caused effects to be attenuated. Nevertheless, when transformed to intelligence quotients based on age-specific norms, the average scores in our intelligence measures neither appeared to be conspicuously high nor particularly homogeneous (verbal IQ: $M = 97.75$, $SD = 12.46$; numerical IQ: $M = 104.01$, $SD = 14.18$; spatial IQ: $M = 98.83$, $SD = 16.18$). Moreover, our analyses focused on linear effects of abilities on mate appeal. The recently proposed threshold-hypothesis for the appeal of intelligence – that is that higher intelligence corresponds to gains in mate appeal only up to a certain level – suggests the possibility of nonlinear relations (Gignac et al., 2018). To our knowledge, this threshold hypothesis has so far only been tested for hypothetical partner preferences and not for real-life dating. While this could be a promising future research direction, it likely requires an intellectually more diverse sample. Finally, our findings may only apply to initial romantic encounters. Existing longitudinal speed-dating studies (e.g., Asendorpf et al., 2011) suggest that effects observed for first meetings may not easily generalize to later relationships. Thus, the idea that people are attracted to intelligence and other abilities should not yet be discarded before similar longitudinal projects investigate the effects on long-term mate appeal.

4.4. Conclusion

There are good reasons to look for intelligence, creativity, and emotional competence in a potential partner. Despite this, our results indicate that appearing to be smart might be more important than being smart, at least when it comes to first short interactions. It is still unclear

whether this means that the cross-culturally robust preferences for high intelligence and other abilities in the ideal partner do not translate at all into real-life dating or whether they become only relevant at later stages of courtship or only under certain circumstances. Future longitudinal research that compares hypothetical to actual partner preferences could clarify whether being smart truly relates to being more desirable.

5. Data accessibility statement

Due to copyright reasons, we cannot share the tests of intelligence (Liepmann et al., 2007) and emotional competence (Freudenthaler & Neubauer, 2005) used in the present study. The remaining material (i.e., a scorecard, the alternative uses task, and a template for the attractiveness ratings) can be found in our OSF project

(https://osf.io/3wtvf/?view_only=22170efe198945ce88365d32118dbab3). Analysis scripts are also available via this link. Data for this manuscript cannot be shared openly, since it cannot be anonymized completely due to its dyadic nature (Schönbrodt, 2018). We are, therefore, in the process of submitting these data to a database as scientific use file. In the meantime, data can be obtained from the authors.

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