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The impact of emotions on romantic judgments: Sequential effects in a speed-dating study

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Abstract

How do our feelings impact the romantic judgments and decisions we make? In a speed-dating context, where people have to judge potential romantic partners sequentially, we investigated whether and how participants' prior affective state guided romantic desire toward and actual choice for an interaction partner. We found evidence for contrast effects, meaning that romantic judgments contrasted with the affective states participants were in at the start of a new interaction. The more positive (excited, interested, or happy) participants felt after one interaction partner, the less attracted they were toward a new interaction partner, and the more negative they felt (irritated or bored), the more attracted they were. The effect of negative emotions (NEs) was primarily visible in men, for whom more prior NEs even increased the chance of choosing an interaction partner at the end of the evening. The effect of positive emotions (PEs), however, had faded away when people chose their date at the end. Additional analyses revealed that specific emotions showed differential effects on romantic desire and actual choice and that contrast effects were mediated but not fully explained (at least in the case of PEs) by desire toward the previous interaction partner.

Keywords

Dating, emotion, feelings, judgment and decision-making, romantic attraction

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Imagine you are single and standing in a bar. A potential partner approaches you, and although you find this person very irritating, you are obliged to interact with him/her. This impacts your mood accordingly, and you start to get in a bad mood. Will the person who approaches you next, suffer from your aversion and will he/she be judged more unfavorably than otherwise would be the case, or quite the opposite, will he/she actually benefit from this, being rated more favorably?

How we feel has a strong impact on the judgments and decisions that we make, ranging from what to buy to who to like (Blanchette & Richards, 2010; Han, Lerner, & Keltner, 2007; Isen, 2001). In many cases, such decisions have to be made in quick succession, in which the response to one option can serve as input for a decision about the next. Also in the context of romantic choices, people often interact with and thus have to evaluate potential partners in quick succession. Individuals are often exposed to and end up talking with different potential targets during the same evening at parties, bars, or other social settings. On dating websites and apps, there is even an explicit sequential presentation of potential partners. For example, on the extremely popular app "Tinder," people use a swiping motion to choose between the photos of other users, and hence between whom they would like to get to know, implying that the next potential partner is only one click away. Additionally, singles are often communicating, texting, or chatting with multiple interested persons simultaneously (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). Finally, there is the possibility to attend speed-dating events, where each person has a series of brief "dates" with other attendees and chooses at the end of the evening whom he/she wants to meet again.

In such complex, sequential environments, how are people's judgments influenced by their feelings? Will their evaluative judgments be in line with the mood they were in upon meeting someone new (evidencing emotion congruent or assimilation processes) or will it contrast with it (evidencing emotion incongruent or comparison processes)? In the present study, we examined whether and how people's prior feelings serve as input for judging the attractiveness of potential dating partners in a speed-dating context.

Emotions and judgments

How we feel impacts our subsequent judgments and how we will perceive, interpret, and remember others (Bower, 1981; Bower, 1991; Clore, Schwarz, & Conway, 1994; Forgas, 1995; Forgas, 2008; Forgas & Bower, 1987), making it very likely that these feelings will also influence judgments about initial romantic desire. Surprisingly, the role of emotion in romantic judgments has been studied very little. Researchers have mainly focused on more stable perceiver characteristics (i.e., characteristics of the person making judgments), such as physical attractiveness, personality, sex, and so on (see Finkel & Baumeister, 2010 for an overview). Therefore, it is unclear how prior emotions would affect judgments about romantic desire, and certainly in a serial dating context, in which people do not only experience emotions in the presence of their current interaction partner but also experience feelings due to the persons coming before. Interestingly, this

specific context can lead to contrasting predictions about how one's feelings would affect romantic desire and choice.

Emotion congruent judgments versus emotion incongruent judgments

When it comes to social judgments, there is abundant evidence for mood-congruity biases. How people feel guides their judgments of social encounters accordingly, because congruent content is primed or because individuals use the emotion directly as information to inform their judgments (Bower, 1981, 1991; Clore et al., 1994; Forgas, 1995, 2008). In a study of Forgas and Bower (1987), for instance, a positive or negative mood was induced by giving participants false-positive or negative feedback on a psychological test. Participants were then presented several person descriptions, and participants in a happy mood paid more attention to positive details and formed more favorable person impressions than participants in a sad mood. In other studies, positive and negative mood inductions that were unrelated (Gouaux, 1971) or associated to the person being judged (Gouaux & Summers, 1973) resulted in according changes in evaluations of a stranger. People's emotional state guides the way in which observed behaviors in others are spontaneously perceived and encoded (Forgas, Bower, & Krantz, 1984) and activates a predisposition to appraise new events and objects in ways that are consistent with the original emotion (Lerner & Keltner, 2000).

On the one hand, this body of literature would thus suggest that prior emotions would elicit emotion congruent judgments for romantic desire toward a person, by a subsequent bias for valence congruent responses. On the other hand, the same literature also suggests conditions in which experienced emotions would elicit valence incongruent judgments later on, referred to as contrast effects (Schwarz, 2011; Schwarz, Strack, Kommer, & Wagner, 1987). Specifically, the inclusion/exclusion model of Schwarz and Bless (2007) states that people often rely on a comparison or reference standard to arrive at a judgment of a target (i.e., the person being judged). Subsequently, affective influences that are used in constructing this standard would provoke contrast effects, whereas affective influences that are used to make constructions of the target itself would produce congruent or assimilation effects. For instance, in one experiment, participants rated their own love life more favorably after watching a sad love movie, although this movie induced a negative mood (Abele & Gendolla, 1999). The emotion-inducing event (e.g., love movie) was a meaningful standard of reference, and participants probably used it as a comparison standard for the evaluation of their own love live (Abele & Gendolla, 1999; Schwarz, 2011).

In daily life, there are often situations in which emotions can be used to form a comparison standard for subsequent person judgments. This is especially the case for sequential judgments and decisions, which occur in a wide variety of settings: employee hiring, evaluations in sport competitions, oral examinations, judges evaluating a series of defendants, driving examiners judging multiple candidates, and so on. How a perceiver is feeling right before meeting one person is then partly due to the persons who came before, which can elicit comparison processes in which people compare the new person with the previous ones. For romantic desire in a serial dating context specifically, this

means that one's prior emotional state can be used as a relevant comparison standard, therefore resulting in emotion-incongruent judgments.

Although contrast effects in judgments about person perception have been under investigated for perceiver characteristics such as experienced emotion, they have been well-established for target characteristics (for overviews, see Bless & Schwarz, 2010; Schwarz & Bless, 1992). For instance, after being presented with untrustworthy (Bless, Igou, Schwarz, & Wänke, 2000), very physically attractive (Kenrick & Gutierres, 1980; Kenrick, Gutierres, & Goldberg, 1989), or unresponsive targets (Spielmann & MacDonald, 2016), people judge the next targets they are exposed to as more trustworthy, less attractive or romantically interesting, or more responsive. In a speed-dating context specifically, people have shown to report less romantic interest in a potential partner after interacting with somebody who was considered as more physically attractive by independent raters (Barghava & Fisman, 2014). What makes emotions different from these already investigated characteristics, however, is that emotions are not stable individual differences that characterize the targets and that people in general agree on (Finkel & Baumeister, 2010). Emotions inherently belong to the perceiver, and they are not only subjective but also change continuously over time, and are affected by multiple processes simultaneously. Still, they are one of the most important sources people rely on to form a judgment (e.g., Forgas, 1995).

Study and research questions

In sum, theoretical frameworks suggest different hypotheses about the impact of a perceiver's prior emotional state on reported desire to a potential partner. On the one hand, people tend to maintain their emotional states by congruent appraisals (e.g., Lerner & Keltner, 2000), often resulting in subsequent emotion congruent judgments. On the other hand, a person's emotional state may be used as a benchmark to contrast one's subsequent romantic evaluation to, therefore resulting in subsequent emotion incongruent judgments. If the latter would be the case, we would expect the impact of the emotional state onto the subsequent judgment to be mediated by experienced romantic desire toward the previous person. Finally, one can also argue that prior emotions are considered irrelevant for people when making subsequent person judgments and thus will not exert an impact on the desire people report toward a new interaction partner. Sometimes it is for instance suggested that only unattributed feelings may infuse into subsequent judgments and that emotions, which are often consciously linked to a cause, may show less effects on judgments of other objects and events (e.g., Schwarz, 1990). However, although in some studies correctly attributed feelings failed to influence subsequent judgments, in numerous other studies, they still had an impact on the subsequent judgment (see Forgas, 1995 for an overview).

We examined the potential role of perceivers' prior state emotions on their judgments of romantic desire, using data from speed-dating events. One hundred and thirty-six individuals dated with multiple potential partners in a series of 4-min interactions, before evaluating these partners' romantic potential. After every date, they filled in questions about their emotions and about evaluations of the potential partner, and at the end of the evening, they decided whom they wanted to meet again. This sort of study

benefits from high ecological validity (participants can initiate a real romantic relationship) and high external validity (with large participant samples), while it is still a well-controlled setting (e.g., Finkel & Eastwick, 2008; Finkel, Eastwick, & Matthews, 2007). Additionally, it enables us to investigate the sequential emotional effects of the participants not only on their romantic desire toward someone but also on their decision to want to see this person again. Finally, it enables us to investigate which emotions matter most and potentially mediating pathways such as romantic desire toward previous persons. By doing this, we aim to obtain more insight into the processes involved in romantic desire and partner choice and the understudied role of individuals' emotions in it.

Method

Participants

Participants were recruited by advertisements, social media channels, and mailing lists ($N = 144$) as part of a project investigating emotions in initial romantic desire (Pe, Gotlib, Van Den Noortgate, & Kuppens, 2016). They were informed that the speed-dating events were research based and free of charge, and they did not receive any monetary compensation in return (as the participation was considered to be a reward in its own right). In the end, 136 Belgian, single individuals attended a speed-dating event where they would meet people of the opposite sex (67 men and 69 women). This sample size was chosen based on a priori power analysis to have sufficient power (.80) to detect small-to-medium effect sizes (.25) for between-person correlations. Age ranged from 20 years to 33 years ($M = 25.04$, $SD = 3.24$). No participant was excluded from further analyses.

Procedure

To register for the speed-dating events, participants filled in an informed consent and a questionnaire assessing background variables online. Based on this questionnaire, they were assigned to different sessions (there were six in total) according to age. Four sessions were held for people younger than 27, two sessions were held for people of 27 and older. This resulted in each participant having a series of 10 to 12 "dates" during the speed-dating session.

For the speed-dating sessions, procedures were used that are conventional for speed-dating events. Each session took place in the same bar, with tables and chairs positioned throughout the space in a suitable manner. Participants were collectively informed about the setup of the evening and were then assigned seats, so that the first "date" could start. Each date lasted 4 min, and a research assistant blew a whistle to signal that participants should rotate to their next speed-date. To reduce potential biases associated with who physically approaches the other (Finkel & Eastwick, 2009), men and women rotated in alternate fashion to the next date.

All attendants received a booklet before starting the series of dates and completed a number of questions on their baseline emotions. After each date, they had 2 min to fill in

a new sheet of questions, again on their emotions and on the evaluation of their interaction partner. At the end of the evening, they filled in a last sheet, which contained the pictures of all their interaction partners, and marked who they wanted to meet again. In case there was a match (two speed-daters mutually agreeing to wanting to see each other again), they were provided with each other's contact details the following day.

Materials

Emotions. Participants indicated how sad, relaxed, anxious, nervous, bored, happy, excited, interested, in love, and irritated they felt at each measurement moment on a scale from 1 = *strongly disagree* to 5 = *strongly agree* ("At this moment, I feel . . . ."). For positive emotions (PEs), the average of feeling relaxed, happy, excited, interested, and in love was calculated. Because each participant reported on his/her emotions multiple times that evening, emotions were nested in participants, and reliability was calculated following recommendations for multilevel modeling analyses of Shrout and Lane (2012). This means that reliability is calculated both between and within persons. The between-person reliability indicates the reliability between people's average responses on items (e.g., does a person with a higher average score of happiness also have a higher average score of feeling relaxed) and equaled .98 for PEs in our study. The within-person reliability, or how consistently emotions within a person changed together across time (e.g., if a person is feeling happier at a certain time point, is he/she also feeling more relaxed), was .61 for PEs.[1] For negative emotions (NEs), the average of feeling sad, irritated, bored, nervous, and anxious was calculated (between-person reliability = .94, within-person reliability = .38). The low within-person reliabilities indicate that for both positive and negative items, the items did not change consistently together across time (e.g., an increase in nervousness did not necessarily go together with an increase in feeling bored). Therefore, the effects of specific prior emotions on romantic desire toward the following interaction partner could also differ, and by consequence, we decided to report additional analyses for each PE and NE item separately.

Romantic desire. Participants' romantic desire for their interaction partner was assessed after each interaction, by their ratings of three items (with 1 = *strongly disagree* to 5 = *strongly agree*): "I felt attracted to my interaction partner," "I found my interaction partner physically attractive," and "I would like to see my interaction partner again." The average of these 3 items was calculated (between-person reliability = .97, within-person reliability = .91).

Actual choice for interaction partner. At the end of the speed-date event, participants indicated for every interaction partner if they wanted to see him/her again (no = 0, yes = 1), resulting in a binary outcome. Participants indicated in 38.5% of the cases that they wanted to see an interaction partner again. Descriptive statistics for PE, NE, romantic desire, and separate emotions are reported in Table 1.

Table 1. Descriptive statistics for all key variables.

	M	*SD*
Positive emotions	2.65	0.66
Feeling interested	2.86	1.12
Feeling happy	3.31	0.91
Feeling excited	2.48	1.04
Feeling relaxed	3.33	1.03
Feeling in love	1.26	6.35
Negative emotions	1.29	0.36
Feeling anxious	1.27	0.58
Feeling sad	1.09	0.34
Feeling nervous	1.69	0.84
Feeling irritated	1.15	0.45
Feeling bored	1.27	0.60
Romantic desire	2.88	0.99

Results

Speed-dating designs have a complex hierarchical data structure with dependencies at the individual, dyadic, and group level that have to be accounted for. Specifically, every participant rates multiple persons from a different subgroup (here of the opposite sex) on a certain evening (and thus in a certain group). Therefore, we applied a multilevel model that takes into account this asymmetric block design. We modeled random effects for male and female participants separately and took into account effects on the level of the individual (participant and partner), dyad, and group. Because there was no variance at the group level, the random effect for the group was omitted in the reported analyses (following the advice in the study by Ackerman, Kashy, & Corretti, 2015). This model differs from the Social Relations Model (Ackerman et al., 2015; Kenny, 2007; Kenny, Kashy, & Cook, 2006) in that we are not interested in variance partitioning of actor (perceiver), partner (target), and relationship effects.[2] Instead, we are interested in how two perceiver variables (prior emotions and romantic desire/actual choice) relate to each other over time within persons.

To investigate the association between prior emotions and judgments of romantic desire, we regressed participants' romantic desire after interaction on their emotion prior to the interaction. Concretely, self-reported desire at time t was predicted by self-reported PE at time $t - 1$. We estimated the general effects and included gender (coded as -1 for men and 1 for women; Ackerman et al., 2015) as a main and interaction effect so that possible gender differences, if any, would be detected.

A similar model was constructed for NE and afterward also for specific emotions. The predictors were person-mean centered, so that they represented state affect and were not confounded with participants' overall experienced mood during the evening. These analyses were conducted with SAS PROC MIXED. Figure 1 represents an overview of the effects of PE and NE at time $t - 1$ on romantic desire and actual choice at time t; Table 2 represents the effects for all specific emotions.

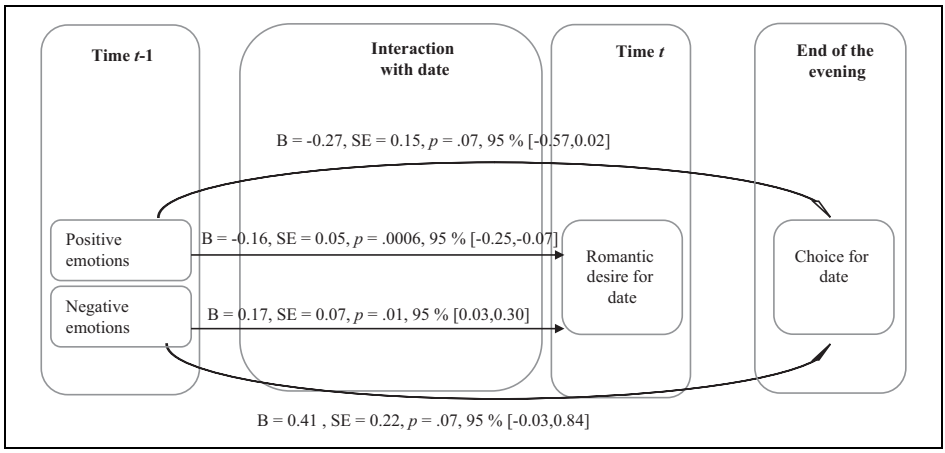

Figure 1. Overview of the effects of positive emotion and negative emotion at time $t - 1$ on romantic desire and actual choice at time t.

Table 2. Multilevel results for the regression coefficients for specific emotions at time $t - 1$ predicting romantic desire at time t, and actual choice at time t.

Model 1	β	*SE*	*T*	*p*	95% CI	R^2 men	R^2 women
Romantic desire at time t							
Feeling interested at time $t - 1$	−.06	.02	−2.68	<.01	[−.10, −.02]	.15	.07
Feeling happy at time $t - 1$	−.08	.03	−2.58	.01	[−.14, −.02]	.13	.07
Feeling excited at time $t - 1$	−.08	.03	−2.89	<.01	[−.13, −.02]	.15	.05
Feeling relaxed at time $t - 1$	−.02	.03	−.68	.50	[−.07, .03]	.15	.05
Feeling in love at time $t - 1$	−.06	.05	−1.20	.23	[−.16, .04]	.16	.06
Feeling anxious at time $t - 1$	−.00	.04	−.02	.98	[−.08, .08]	.16	.06
Feeling sad at time $t - 1$	.10	.06	1.68	.09	[−.02, .22]	.18	.05
Feeling nervous at time $t - 1$	.01	.03	.48	.63	[−.04, .06]	.15	.06
Feeling irritated at time $t - 1$	.15	.05	3.20	<.01	[.06, .24]	.18	.05
Feeling bored at time $t - 1$	.08	.04	2.32	.02	[.01, .15]	.15	.05
Model 2	β	*SE*	*T*	*p*	95% CI	OR	
Actual choice at time t							
Feeling interested at time $t - 1$	−.15	.07	−2.04	.04	[−.29, −.01]	0.86	
Feeling happy at time $t - 1$	−.18	.10	−1.88	.06	[−.38, .01]	0.83	
Feeling excited at time $t - 1$	−.11	.09	−1.26	.21	[−.28, .06]	0.90	
Feeling relaxed at time $t - 1$	.01	.08	.16	.87	[−.15, .18]	1.01	
Feeling in love at time $t - 1$	−.07	.16	−.41	.68	[−.38, .25]	0.94	
Feeling anxious at time $t - 1$	−.05	.13	−.42	.67	[−.31, .20]	0.95	
Feeling sad at time $t - 1$	.54	.22	2.52	.01	[.12, .97]	1.72	
Feeling nervous at time $t - 1$	.05	.09	.62	.53	[−.12, .22]	1.06	
Feeling irritated at time $t - 1$	.38	.15	2.50	.01	[.08, .68]	1.46	
Feeling bored at time $t - 1$	.07	.12	.61	.54	[−.16, .31]	1.08	

Note. OR = odds ratio; CI = confidence interval.

Table 3. Results for the regression coefficients for specific emotions at time 1 predicting romantic desire for the first interaction partner (assessed at time 2), and actual choice for this interaction partner.

Model 1	β	β	*SE*	*T*	*p*	R^2
Romantic desire at time 2						
Feeling interested at time 1	−.12	−.11	.10	−1.23	.22	.18
Feeling happy at time 1	−.16	−.11	.12	−1.27	.21	.18
Feeling excited at time 1	−.18	−.16	.10	−1.86	.06	.19
Feeling relaxed at time 1	−.16	−.14	.10	−1.68	.10	.19
Feeling in love at time 1	.16	.09	.16	1.04	.30	.18
Feeling anxious at time 1	.09	.06	.12	0.78	.44	.17
Feeling sad at time 1	.34	.15	.28	1.21	.23	.18
Feeling nervous at time 1	.01	.01	.09	0.13	.89	.17
Feeling irritated at time 1	.09	.04	.18	0.48	.63	.17
Feeling bored at time 1	.13	.08	.14	0.94	.35	.20
Model 2	*B*	β	*SE*	χ^2	*p*	*Ex*
Actual choice at time 2						
Feeling interested at time 1	−.43	−.20	.24	3.14	.08	0.65
Feeling happy at time 1	−.58	−.21	.31	3.53	.06	0.56
Feeling excited at time 1	−.27	−.12	.23	1.29	.26	0.77
Feeling relaxed at time 1	−.52	−.23	.25	4.31	.04	0.60
Feeling in love at time 1	.22	.06	.38	0.33	.56	1.25
Feeling anxious at time 1	−.04	−.01	.29	0.02	.89	0.96
Feeling sad at time 1	.33	.08	.64	0.27	.61	1.39
Feeling nervous at time 1	−.07	−.03	.23	0.09	.77	0.94
Feeling irritated at time 1	−.35	−.09	.44	0.63	.43	0.71
Feeling bored at time 1	.45	.14	.37	1.52	.22	1.57

We found that participants' self-reported PEs after a prior interaction negatively predicted their romantic desire toward their dates, evidencing a contrast effect (see Figure 1), with no differences between men and women, $B = -0.02$, $SE = .05$, $p = .73$, 95% CI [−0.11, 0.08]. Thus, the more positive participants felt entering a conversation, the less attracted they reported to be to their interaction partner afterward.

For NEs, we observed the opposite: NEs prior to an interaction positively predicted romantic desire after the interaction. This effect was moderated by gender, $B = -0.16$, $SE = .07$, $p = .02$, 95% CI [−0.29, −0.03]. Modeling fixed effects for men and women separately by the use of dummy variables revealed that whereas prior NEs did positively predict romantic desire in men, $B = 0.33$, $SE = .10$, $p < .001$, 95% CI [0.14, 0.52], it did not predict romantic desire in women, $B = 0.01$, $SE = .09$, $p = .93$, 95% CI [−0.18, 0.19].[3] To obtain an indication of the sizes of these effects, we calculated the percentages of variance in romantic desire explained by prior PEs and NEs. Specifically, we computed pseudo R^2 measures to assess how much of the male and female's total variance in their romantic desire was accounted for by adding PEs or NEs to the models (see the supplementary materials of Ackerman et al., 2015 on how to do this). Participants' prior PEs explained 13% of the male participants' and 9% of the female participants' romantic

desire reports. Participants' prior NEs explained 14% of the male participants' and 4% of the female participants' romantic desire reports.

Next, we assessed the effects of separate prior emotions on romantic desire (see Table 3, Model 1). Regarding PEs, feeling interested, happy, or excited before the interaction negatively predicted romantic desire for the interaction partner afterward. Feeling relaxed or in love beforehand had no significant negative effects on romantic desire toward the interaction partner. Regarding NEs, feeling irritated or bored beforehand positively predicted romantic desire toward the interaction partner, and feeling sad showed a similar trend in this direction, whereas feeling anxious or nervous beforehand did not predict romantic desire toward the interaction partner. There were no substantial gender differences in these effects, except for the effect of prior anxiety, $B = -0.08$, $SE = .04$, $p = .03$, 95% CI [−0.16, −0.01]. However, when modeling the effects for men and women separately, feeling anxious beforehand did not predict romantic desire in men or women, for men: $B = 0.08$, $SE = .06$, $p = .15$, 95% CI [−0.03, 0.19]; for women: $B = -0.08$, $SE = .05$, $p = .14$, 95% CI [−0.19, 0.03].

Second, to investigate the association between prior emotions and actual choice for the interaction partner at the end of the evening, we predicted participants' actual dating choice for an interaction partner by their emotion prior to the interaction. Again, we did this separately for PE, NE, and the specific emotions, and with person-mean centered predictors. Because in these models the dependent variable was binary, we used logistic models, conducting the analyses with SAS PROC GLIMMIX. Prior PEs did not predict actual choice in participants (although trending in that direction, with $p = .07$; see Figure 1), and there were no differences according to gender, $B = -0.06$, $SE = .15$, $p = .71$, 95% CI [−0.35, 0.24]. Prior NEs did not predict actual choice in participants overall (see Figure 1), but this effect differed for men and women, $B = -0.60$, $SE = .22$, $p = .006$, 95% CI [−1.03, −0.18].[4] In men, prior NEs did positively predict actual choice, $B = 1.01$, $SE = .31$, $p = .001$, 95% CI [0.40, 1.63], but this was not the case in women, $B = -0.20$, $SE = .31$, $p = .53$, 95% CI [−0.80, 0.41]. Experiencing more NEs beforehand increased the odds of choosing for the date by 2.75 in men.

Separate analyses for specific PEs revealed only a negative effect of feeling interested beforehand on actual choice for the interaction partner (see Table 2, Model 2). There was no gender difference in this effect. Analyses for specific NEs showed that although reports of boredom, anxiousness, or nervousness did not matter for actual choice for the next date, feeling irritated or sad did positively predict actual choice for the next partner (see Table 2, Model 2). The effects of feeling nervous and anxious beforehand were moderated by gender. Specifically, whereas feeling nervous beforehand positively predicted actual choice in men, $B = 0.37$, $SE = .12$, $p = .002$, 95% CI [0.14, 0.60], it negatively predicted actual choice in women, $B = -0.26$, $SE = .12$, $p = .04$, 95% CI [−0.51, −0.02]. Feeling anxious beforehand did not predict actual choice in men, $B = 0.24$, $SE = .17$, $p = .15$, 95% CI [−0.09, 0.57], but it had a positive effect on women, $B = -0.35$, $SE = .20$, $p = .07$, 95% CI [−0.74, 0.03].

Next, in follow-up analyses, we examined whether the found effects of prior PE and NE on romantic desire could be explained by experienced desire toward the previous partner, which would provide further evidence for a contrast effect. If participants used their experienced emotion as a reference standard and an indicator for how attracted they

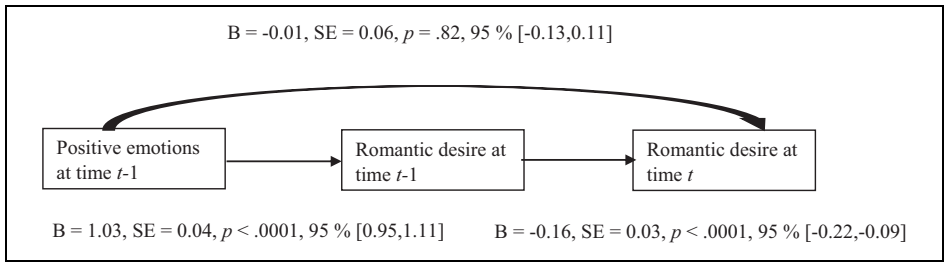

Figure 2. Multilevel mediation model, in which romantic desire at time $t - 1$ (M) mediates the effect of positive emotions at time $t - 1$ (X) on romantic desire at time t (Y).

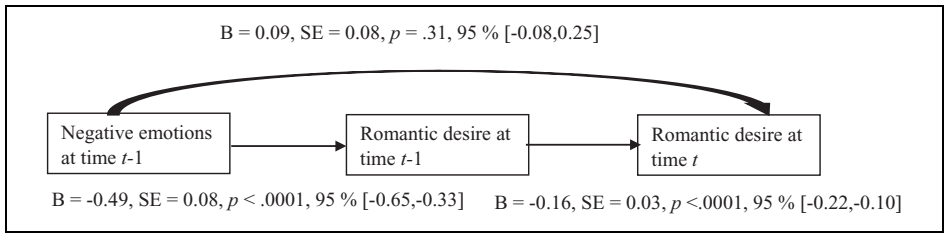

Figure 3. Multilevel mediation model, in which romantic desire at time $t - 1$ (M) mediates the effect of negative emotions at time $t - 1$ (X) on romantic desire at time t (Y).

were toward the previous date, this means that comparison processes overruled the basic emotion spreading processes. To this end, we examined whether the effects of self-reported state emotions at time $t - 1$ on participants' romantic desire at time t were mediated by romantic desire at time $t - 1$. We used multilevel mediation analyses (more specifically lower level mediation models or 1-1-1 models with random intercepts (Krull & MacKinnon, 2001; Pituch, Whittaker, & Stapleton, 2005). Specifically, we applied unconflated multilevel mediation modeling by within-person centering the predictor and mediator so that within and between components of the effects would not be conflated (MacKinnon, 2008).[5] Gender was added as a moderating factor.

We examined mediation by a series of different multilevel models, again performing these analyses separately for PE and NE (see Figures 2 and 3). In a first model, we predicted romantic desire at time $t - 1$ (M) from emotion at time $t - 1$ (X) (resulting in a coefficient Ba), including gender as a main and interaction effect. In a second model, we predicted romantic desire at time t (Y) from romantic desire (M) and emotion (X) at time $t - 1$ (resulting in a coefficient Bb for desire at time $t - 1$), again including gender as a main and interaction effects. The product of the estimates of the coefficients of Ba and Bb then represents the mediated indirect effect of prior emotion on judgments through romantic desire toward the previous interaction partner.[6] For PEs, we found a significant mediation effect of romantic desire toward the previous partner, with $BaBb = -0.16$, $SE = .03$, 95% CI [−0.23,−0.10] (see Figure 2).[7] For NEs, we found equivalent effects, with $BaBb = 0.08$, $SE = .02$, 95% CI [0.04, 0.12] (see Figure 3). The effects of prior PE

and NE on people's romantic desire toward a new interaction partner were mediated by how much romantic desire they reported toward the previous partner.[8]

To investigate whether prior emotion would still exert a similar effect on judgments on top of what could be explained by romantic desire toward the previous interaction partner, we conducted additional analyses. Specifically, we investigated whether and what impact the emotion that was experienced at the beginning of the evening, when participants did not have had any date yet, exerted on reported desire toward the first interaction partner. To this end, we conducted regression models in which the person-centered version of the PE or NE at the beginning of the evening was entered as a predictor for desire toward the first date. Additionally, we conducted logistic models in which the same emotions were used to predict actual choice at the end of the evening. Each time, gender was added as a main and interaction effect. How positive participants felt at the beginning of the evening now marginally negatively predicted romantic desire toward the first interaction partner, with $\beta = -.34$, $t(126) = -1.90$, $p = .06$, $R^2 = .19$, and decreased the chance of selecting this interaction partner at the end of the evening with an odds ratio (OR) of .34, $\chi^2(1) = 5.28$, $p = .02$. How negative participants felt at the beginning of the evening failed to predict how attracted they were toward their first date, $\beta = .22$, $t(126) = 0.91$, $p = .36$, $R^2 = .17$, or their actual choice for this person, $\chi^2(1) = 0.18$, $p = .75$, OR = 1.19. There were no significant interactions with gender for both PE and NE (all $p > .05$). Conducting analyses for each specific emotion separately revealed that the effects of PEs on initial romantic desire were mainly driven by how excited participants felt (with the effect of feeling excited being in a similar direction), whereas the effects on actual choice later on were mainly driven by how relaxed and marginally by how happy and interested they were feeling (see Table 3). There were no differences in these effects between men and women (all $p > .05$).

Discussion

We examined the role of a perceiver's prior emotional state on interpersonal desire in a speed-dating study. We found that the more positive participants felt when entering an interaction, the less desire they reported toward the interaction partner afterward, and this seemed mainly driven by feeling happy, excited, or interested. The more negative participants felt, particularly in terms of feeling irritated or bored, the more desire they reported. This effect of prior NEs on reported desire was mainly visible in men (opposed to women), whereas the effect of prior PEs did not differ across gender. The found contrast effects were mediated by romantic desire toward the interaction partner that came before.

With regard to the effects of emotional states on actual decisions of wanting to see someone again, higher prior PEs did not predict the choice for an interaction partner (but specifically feeling interested beforehand did), and this effect did not differ between men and women. The effect of prior NEs on actual choice for the interaction partner differed between men and women. Higher prior NEs increased the choice for one's interaction partner in men, but not in women. The intensity of feeling sad or irritated did increase the probability that the following interaction partner was chosen for men and women.

The observed contrast effects of prior emotions on romantic desire were not exclusively due to desire toward a previous partner or at least not for PEs. Even when PEs could not be caused by romantic desire toward the previous interaction partner because participants had not met anyone yet, more intense positive feelings marginally negatively predicted how much one liked a subsequent interaction partner and decreased the participants' actual choice for this partner. The contrast effects of NEs on romantic desire and choice did disappear when these emotions could not result from romantic desire toward an alternative partner. One possibility is that these effects of NEs were driven by people being relieved to be able to escape from an awkward or negative situation and that the new interaction partner benefitted from this by association.

The finding that prior emotions resulted in emotion-incongruent judgments stands in sharp contrast to the emotion-congruent biases researchers find when examining the influence of emotion on interpersonal desire judgments (e.g., Forgas & Bower, 1987; Gouaux, 1971; Gouaux & Summers, 1973) but is consistent with the inclusion/exclusion model of Schwarz and Bless (2007). People seemed to use their prior emotions as a reference standard to compare the target of judgment. This means that when people were experiencing more positive feelings before entering a date with the target, the target was rated relative to a more positive standard or scale anchor, and therefore evaluated more negatively. On the contrary, when people were experiencing more negative feelings (due to a previous date), the target was rated relative to a more negative scale anchor and therefore came out better. Thus, the judgment shifted away from the information derived from one's preexisting mood.

It is notable that the effect of prior NEs on both desire toward and choice for a partner was stronger in men than in women. This gender difference disappeared when only the first NE of the evening was looked at and thus seemed to be due to its effects on desire toward the previous partner. We are not aware of research showing gender differences in the effects of emotion on judgments, but men seem to be more susceptible for contrast effects in romantic judgments than women (Barghava & Fisman, 2014; Kenrick et al., 1989; Kenrick, Neuberg, Zierk, & Krones, 1994). This does not explain, however, why we only found evidence for this gender difference in NEs and not in PEs. One potential reason can be that men experience more NEs that are other-oriented (thus focused on the previous date), while women experience more NEs that are self-oriented (Cross & Madson, 1997; Joon, 2007).

Our findings illustrate that something seemingly mundane and beyond one's control, such as to whom the person of interest has previously been talking to or how positive he or she was feeling when entering a bar, can have consequences for the subsequent romantic dynamics that evolve. The effects of PEs were only short-lived, but the effects of NEs lasted longer, at least in men. This is partly consistent with research showing that NEs have more impact and are longer lasting than positive ones (Baumeister, Bratslavsky, Vohs, & Finkenauer, 2001). However, even the short-lived effects can already have practical consequences. People form judgments about new persons very quickly (Willis & Todorov, 2006), and these judgments determine whether they start, continue, or withdraw from the interaction. It seems that, especially in a sequential setting, it is better not to completely rely on your immediate "gut reaction" but to give it some time. For speed-dating researchers not interested in contrast effects and for speed-dating organizers, our

findings imply that it is better to ask people to form a judgment at the end of all speed-dates instead of immediately after each date. With regard to dating in general, people better judge potential targets on their own (although a positive mood can still exert an influence then) instead of in a sequential setting. This is consistent with one of the common remarks on modern dating methods, which almost always involve sequential methods: They invite comparison, which can lead people to take information into account that otherwise wouldn't be considered (Finkel et al., 2012).

Besides being immediately practically relevant, these findings have broader implications as well. Judgments on romantic desire are not the only interpersonal judgments that are often made in sequence in daily life. Many evaluative person judgments have a sequential component to them. If emotion-congruency effects do not generalize from static judgments to sequential ones, this has important implications for decision-making and judgments in a wide variety of settings, ranging from the grading of students to making first impressions. This finding highlights the need to investigate multiple ecologically valid settings, and the specific components to them, to further disentangle the specific influences emotions might have on judgments. At the same time, our findings also suggest potential boundaries to the influence of prior emotional state on judgments, as time span mattered: The prior (positive) emotional state exerted an influence on immediate romantic judgments but failed to impact the final dating decision at the end of the evening. Theoretically, this indicates the importance of investigating time persistence of emotion effects on judgments to obtain more insight in its underlying mechanisms.

Our choice for a well-controlled, highly ecologically valid setting has the drawback that the associations between prior emotional state, romantic desire, and dating choice are correlational, preventing us from making direct causal inferences. An important direction for future research would be to compare in an experiment if prior irrelevant, emotion-inducing experiences versus relevant prior emotions, related to romantic judgments, would have the expected effects on subsequent romantic desire. For instance, relevant moods could be induced by providing the participants beforehand with a negative or positive romantic interaction experience (letting them interact with an interested, empathic versus uninterested, harsh confederate of the same attractiveness as the subsequent target of judgment).

Additionally, at this moment, it is unclear whether the contrast effects found indeed generalize to other domains, and therefore, future research is needed. Further, another open question is if our findings also apply to "regular dating," in which people encounter dates with larger intervals in between. We would speculatively suggest that it does for very extreme emotions, because they could be incorporated as a reference standard. Finally, it was intriguing that some emotions (e.g., interest) affected romantic desire and actual choice for an interaction partner more than others and that more PEs at the beginning of the evening reduced the chance of choosing for a first interaction partner, whereas more NEs had no impact. Future research is needed to see whether these findings would replicate.

Conclusion

Numerous studies have shown that feelings might influence judgments of different kinds. In daily life, evaluative judgments are often made in quick succession, however,

which might impact how emotions would precisely guide such evaluative judgments. In a speed-dating context, where people explicitly judge potential romantic partners sequentially, we found that romantic judgments contrasted with the mood participants were in upon starting an interaction and that this was mediated, but not fully explained, by romantic desire to the previous interaction partner. By demonstrating this relationship, this study contributes to a comprehensive understanding of the underlying processes and consequences of emotion effects in judgments.

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Open research statement

This research was not pre-registered. The data and materials used in the research are available upon request by emailing laura.sels@kuleuven.be.

Notes

1. Shrout and Lane (2012) report on the calculation of within- and between-subject reliabilities for fixed designs, and we followed their recommendations because the time points on which emotions and romantic desire are assessed, correspond to anchor events (the dates; see also Pe et al., 2016). Similar results were obtained for the multilevel modeling method advised by Nezlek (2012).
2. In the Social Relations Model, actor effects represent the consistency of a person's rating across all partners. This person is also often referred to as the perceiver. Partner effects reflect the degree to which a person is rated similarly by their partners (targets). Relationship effects capture the unique effects of a perceiver toward a specific target.
3. We also carried out models that controlled for the current emotion or emotion at time *t*. Controlling for current emotion did not change these results. Prior emotions thus impacted romantic desire toward an interaction partner, above and beyond the emotions elicited by this partner (for positive emotion (PE), $p < .0001$; for negative emotion (NE), $p = .0003$).
4. Again, we carried out models that controlled for the current emotion or emotion at time *t*. When we controlled for current emotion, both prior PE and NE positively predicted actual choice at time *t* (for PE: $p = .03$; for NE: $p = .003$).
5. We report results for multilevel modeling opposed to multilevel structural equation modeling, which is sometimes advocated to use to avoid biased between-person effects (e.g., Preacher, Zhang, & Zyphur, 2010). We do this because the performance of multilevel mediation modeling for 1-1-1 models has been explicitly evaluated through simulation studies (Krull & MacKinnon, 2001; Pituch et al., 2005), and our focus is on within-person effects. Applying multilevel structural equation modeling did, however, not impact the significance of the indirect mediated effects.

6. The asymmetric confidence limits approach (based on the distribution of the product of two normal random variables; MacKinnon, Lockwood, & Williams, 2004; Tofighi & MacKinnon, 2011) was used to determine significance of the indirect mediated effects, which follows the suggestion of Pituch, Whittaker, and Stapleton (2005).
7. We do not talk about full or partial mediation as there is a high likelihood of erroneously concluding that complete mediation has occurred because power for testing direct effects in these models is low (Pituch et al., 2005).
8. To examine whether the effect of prior NEs on actual choice for a date in men was mediated by desire to the previous interaction partner, we would have to apply lower level mediation models with a binary outcome. However, implementations of mediation analyses with binary outcomes have not been extended yet to multilevel designs (Hertzog, 2018). Therefore, we were unable to perform such analyses and report the results in the manuscript.

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