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Reciprocal self-disclosure makes children feel more loved by their parents in the moment: A proof-of-concept experiment

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Abstract

Feeling loved by one's parents is critical for children's health and well-being. How can such feelings be fostered? A vital feature of loving interactions is reciprocal self-disclosure, where individuals disclose intimate information about themselves. In a proof-of-concept experiment, we examined whether encouraging reciprocal self-disclosure in parent-child dyads would make children feel more loved during the conversation. Participants were 218 children (ages 8–13, 50% girls, 94% Dutch) and one of their parents (ages 28–56, 62% women, 90% Dutch). Parent-child dyads received a list of 14 questions and took turns asking them each other for 9 min. Dyads were assigned randomly to engage in self-disclosure (questions invoking escalated intimacy) or small talk (questions invoking minimal intimacy). Before and after, children reported how loved they felt by their parent during the conversation. Self-disclosure made children feel more loved during the conversation than did small talk. Compared to small talk, self-disclosure did not instigate conversations that were lengthier or more positive; rather, it instigated conversations that were more emotionally charged (reflecting anger, anxiety, and sadness), social (discussing family and friends), reflective (creating insight), and meaningful (addressing deeply personal topics, including the passing of loved ones). The dyad's gender composition did not significantly moderate these effects. Our research suggests that reciprocal self-disclosure can make children feel more loved in the moment, uncovers linguistic signatures of reciprocal self-disclosure, and offers developmental scientists a tool to examine causal effects of reciprocal self-disclosure in parent-child dyads. Future work should examine long-term effects in everyday parent-child interactions.

KEYWORDS
childhood, love, parent-child relationship, reciprocal self-disclosure

Research Highlights
- How can parents make children feel more loved by them in the moment? We theorize that these feelings can be cultivated through reciprocal self-disclosure.
- In a proof-of-concept experiment, we examined effects of reciprocal self-disclosure versus small talk in 218 parent-child dyads, with children aged 8−13.
- Self-disclosure (vs. small talk) made children feel more loved during the conversation. Linguistically, self-disclosure instigated conversations that were more emotionally charged, social, reflective, and meaningful.
- This research provides an experimental method to study self-disclosure in parent-child dyads and suggests that self-disclosure can make children feel more loved in the moment.

1 | INTRODUCTION

Feeling loved by one's parents is critical for children's health and well-being (Brummelman et al., 2015; Deci & Ryan, 2000; Dweck, 2017; Harlow, 1958). When children feel loved by their parents, they experience a warm, caring, and supportive relationship with their parents, and they notice the physical, verbal, and symbolic behaviors that parents use to express their fondness of them (Feldman, 2017; Rohner, 2004). How can parents make children feel more loved by them in the moment? A vital feature of loving interactions is *reciprocal self-disclosure*, where interaction partners disclose intimate information about the self to each other (Cozby, 1973; Derlega et al., 1993; Greene et al., 2006). Psychologists and philosophers have theorized that self-disclosure can spark love. Erich Fromm (1956) wrote: "Only if I know a human being objectively, can I know him in his ultimate essence, in the act of love" (p. 31). Similarly, Sidney Jourard (1971) opined: "If I love someone, not only do I strive to know him; *I also display my love by letting him know me.* At the same time, by so doing, I permit him to love me" (p. 5). Here, we extended this insight to parent-child dyads. In a proof-of-concept experiment, we examined whether encouraging reciprocal self-disclosure in parent-child dyads would make children feel more loved during the conversation. Also, we probed the linguistic signatures of reciprocal self-disclosure via computerized text analysis.

1.1 | Self-disclosure and love

Self-disclosure refers to the intentional revelation of intimate information about the self to another person (Finkenauer et al., 2018; Greene et al., 2006). People have a desire to self-disclose: They readily forgo money to disclose about the self, and self-disclosure is associated with increased activation in the brain's reward system (Mobasser et al., 2022; Tamir & Mitchell, 2012). Self-disclosure aids the development of relational intimacy. According to social penetration theory (Altman & Taylor, 1973), self-disclosure is the process of peeling back the layers of each other's selves. When relationships are distant, partners

divulge superficial self-aspects (*small talk*: "I like vanilla ice cream"). As relationships gain in intimacy, partners divulge deep self-aspects (*self-disclosure*: "The last time I felt truly alone was when mom passed away"). Doing so, they penetrate the public self—the outermost layer that is visible to many people—to reach the private self—the innermost layer that is visible only to significant others (Carpenter & Greene, 2015). Such social penetration contributes to intimacy: After self-disclosure, people are better liked and like others better (Collins & Miller, 1994). While research has begun to decipher the antecedents of self-disclosure in parent-child dyads (Nowell et al., 2023), no research has examined its consequences for parent-child bonding. Existing research on parent-child relationships has focused on *routine disclosure* (e.g., whereabouts, activities) rather than *self-disclosure* (Tilton-Weaver et al., 2014).

In most relationships, such as parent-child ones, self-disclosure by one person begets self-disclosure by another (Dindia, 2002; Jourard, 1971). Reciprocal self-disclosure is especially conducive to relational intimacy. For example, in pairs of unacquainted adults, those who disclosed reciprocally (vs. non-reciprocally) experienced greater liking, closeness, and perceived similarity (Sprecher et al., 2013; also see Sprecher & Treger, 2015). In parent-child relationships, reciprocal self-disclosure is risky, as it renders both partners vulnerable to humiliation or hurt (Omarzu, 2000; Petronio, 2002), and it challenges hierarchy, as reciprocal self-disclosure is typically greater in horizontal (e.g., parent-parent) than vertical (e.g., parent-child) relationships (Finkenauer et al., 2004; Tilton-Weaver et al., 2014). By self-disclosing, then, parent and child may establish a shared foundation of trust and equality, which provides a basis for the child feeling more loved by the parent during the conversation. Providing indirect support for this notion, children report spontaneously that engaging in dialogue with their parents can make them feel loved (McNeely & Barber, 2010).

1.2 | Self-disclosure task

Although parents today spend more time with their children than parents did half a century ago (Bianchi et al., 2006), the fast pace of

everyday life can make it difficult for them to engage in deep conversations with their children. How to elicit reciprocal self-disclosure in parent-child dyads? Surprisingly, no research has addressed this question. Existing research has focused on unacquainted adults. In several experiments (Aron et al., 1997), unacquainted university students, after being paired, opened an envelope containing a list of questions. Students were randomly assigned to engage in self-disclosure (asking each other questions escalating in intimacy) or small talk (asking each other questions involving minimal intimacy) for 45 min. Those in the self-disclosure (vs. small-talk) condition experienced greater closeness. However, everyday conversations rarely take 45 min. Therefore, researchers have developed a shorter self-disclosure task that lasts 9 min (Sedikides et al., 1999). We used this procedure, for the first time, in parent-child dyads.

Can self-disclosure make children feel more loved by their parents, at least in the moment? A common assumption is that self-disclosure is functional only in early or middle stages of relationship development (Altman & Taylor, 1973; Won-Doornink, 1979). Parents and children may know each other too well and love each other too much for self-disclosure to improve their relationship. This assumption may be untenable, however, for three reasons. First, self-knowledge is limitless and evolving (Sedikides & Spencer, 2011), so there will always be new information to mutually discover. Second, even when children self-disclose to their parents, parents may not self-disclose to them (Villalobos Solís et al., 2015), because parents may not expect children to be responsive to their needs and may not want to burden children or treat them as equals (Finkenauer et al., 2018). Third, even though most children feel loved by their parents most of the time, this feeling fluctuates considerably (Bülow et al., 2022; Coffey et al., 2022). Together, these findings suggest that reciprocal self-disclosure can be raised substantially in parent-child dyads, and that doing so can contribute to children's feeling of being loved by their parent in that very moment.

1.3 | Linguistic signatures

Language has evolved, in part, to facilitate community bonding (Dunbar, 1993). For example, language enables humans to share abstract mental states with others across time and space (e.g., describing how lonely they felt years ago). Accordingly, the words people use can reveal a great deal about their social words (Pennebaker et al., 2003). How would parent-child reciprocal self-disclosure shape word use? Indirect evidence suggests that self-disclosure engenders conversations that are emotionally charged, social, reflective, and meaningful. One study examined conversations during daytime and around the campfire at night among a group of Ju'/hoansi (or !Kung) Bushman in Botswana (Wiessner, 2014). Whereas day talk centered around practicalities and gossip, night talk was emotionally charged (e.g., healing rifts of the day), social (e.g., understanding others in their external networks), reflective (e.g., evoking the imagination), and meaningful (e.g., telling stories conveying a deeper meaning). Reciprocal self-disclosure may not instigate conversations that are lengthier or more positive; rather, it may instigate conversations that are deeper.

2 | OVERVIEW

We examined whether reciprocal self-disclosure (vs. small talk) in parent-child dyads would make children feel more loved by their parents during the conversation. We focused on middle-to-late childhood (ages 8–13), when children still readily disclose intimate information about themselves to their parents (Finkenauer et al., 2002; Papini et al., 1990). We randomly assigned 218 parent-child dyads to engage in self-disclosure or small talk. Before and after, children reported how loved they felt by their parent during the conversation. We transcribed parent-child conversations and analyzed them using Linguistic Inquiry and Word Count (LIWC). We hypothesized that self-disclosure, compared to small talk, would make children feel more loved by their parents during the conversation. Also, we hypothesized that self-disclosure, compared to small talk, would spark conversations that are more emotionally charged, social, reflective, and meaningful.

3 | METHOD

Participants were 218 children (50% girls, 93% of Dutch origin) aged 8–13 years ($M = 9.75$, $SD = 1.40$) and one of their parents (62% women, 88% of Dutch origin) aged 28–56 years ($M = 41.99$, $SD = 4.74$). We allowed only one child and one parent to participate per family. One parent-child dyad withdrew their data, and one quit before completing the experimental manipulation but without withdrawing their data. Participants visited Science Center NEMO, a Dutch science museum, and were recruited for a study on parent-child conversations. The research was part of Science Live, a program that enables scientists to use NEMO visitors as participants. We were allowed a 2-week period of data collection, and we tested as many participants as possible within that time period. We did not inspect or analyze the data before terminating data collection, and we did not exclude any participants. Our final sample size provides a power of 0.96 for detecting a medium main effect ($f = 0.25$) of self-disclosure on children's feeling of being loved by their parent during the conversation ($\alpha = 0.05$, two-tailed; Faul et al., 2007). Prior to their inclusion in the study, parents signed informed consents for their own and their child's participation. The study was approved by the Ethics Review Board of the Faculty of Social and Behavioral Sciences, University of Amsterdam (2018-CDE-9735). Data, syntax, codebook, and experimental materials are available on OSF at https://osf.io/ba9zs/.

3.1 | Self-disclosure task

The self-disclosure task capitalizes on the principle that a vital feature of a loving relationship is reciprocal and escalating self-disclosure (Collins & Miller, 1994). We modeled the task after prior social-psychological procedures applied in adult interactions (Aron et al., 1997; Sedikides et al., 1999). Specifically, we selected and added questions appropriate for parent-child interactions (e.g., instead of asking

FIGURE 1 Experimental setup for reciprocal self-disclosure task.

"Do you have a secret hunch about how you will die?", we asked "Did you ever experience something scary when you were younger? What was it?").

Parent and child sat in two comfortable chairs, diagonally opposite to each other, in a dimly lit room (Figure 1). We gave each dyad a list of 14 questions, and they took turns asking and answering them in a 9-min session (Appendix), with the parent starting. We randomly assigned dyads to the self-disclosure ($n = 108$) or small-talk ($n = 108$) condition. In the self-disclosure condition, questions became increasingly intimate over time. In the small-talk condition, questions were minimally intimate throughout. Table S1, provides an overview of prototypical answers.

3.2 | Parental love

Children reported how loved they felt by the parent who participated in the research on the eight-item Warmth subscale of the Short Form of the Parental Acceptance-Rejection Questionnaire (Rohner, 2005). The scale captures a dimension "on which all humans can be placed because everyone has experienced in childhood more or less love at the hands of major caregivers" (Rohner, 2005, p. 5). Before the task, children reported how loved they felt in general (i.e., trait parental love). Example items: "My father/mother…": "says nice things about me," "is really interested in what I do," "makes me feel wanted and needed," "lets me know he/she loves me," and "treats me gently and with kindness" (0 = *Not at all true*, 3 = *Completely true*; $\alpha = 0.75$; $M = 2.54$, $SD = 0.38$). After the task, they reported how loved they felt during the conversation (i.e., state parental love). Example items: "During the exercise, my father/mother": "said nice things about me," "was really interested in what I do," "made me feel wanted and needed," "let me know he/she loves me," and "treated me gently and with kindness" (0 = *Not at all true*, 3 = *Completely true*; $\alpha = 0.82$; $M = 2.49$, $SD = 0.46$).

3.3 | Linguistic analysis

We transcribed all answers (i.e., excluding the 14 questions that constituted the experimental manipulation) and analyzed the transcripts via LIWC (Pennebaker, Booth et al., 2015a), which has been used in prior work to capture parents' and children's psychological states (Alisic et al., 2016; Hexem et al., 2013; Wardecker et al., 2017). We implemented the psychometrically-validated Dutch 2015 dictionary (Van Wissen & Boot, 2017). LIWC indexes summary language variables (e.g., word count) and calculates the percentage of total words in various categories, including psychological processes. We were concerned with the following psychological processes: (a) affective processes (e.g., negative emotions); (b) social processes (e.g., family); (c) cognitive processes (e.g., insight); (d) perceptual processes (e.g., feeling); and (e) personal concerns (e.g., death). We calculated these variables for parent and child separately, as well as for the dyad as a whole.

For completeness, Table S2 provides an overview of all LIWC dimensions. We not only included their means and standard deviations, but we also indicated the percentage of conversations touching on each dimension *at least once*. Across experimental conditions, of the nine linguistic dimensions of interest, eight were used by a large majority of dyads (more than 88%; range 88.4%—100%). Only death was used less, with still more than one fifth of dyads mentioning this personal concern at least once (23.6%).

3.4 | Data analysis plan for confirmatory analyses

We conducted the analyses via SPSS statistical software, version 29. We used Jamovi statistical software, version 2.3.19 (gamlj module) to follow-up on the multilevel analyses. Despite our directional hypotheses, we used two-tailed testing to provide conservative estimates.

To examine the effects of self-disclosure on parental love, we conducted an Analysis of Covariance (ANCOVA) on state parental love, with trait parental love as covariate, and experimental condition as between-subjects factor (0 = small talk, 1 = self-disclosure). We set α at 0.05, two-tailed. We examined outliers on parental love. There was one univariate outlier on trait parental love ($z = -3.39$) and one on state parental love ($z = -3.76$). We retained them, as they did not influence unduly the results (Cook's distances < 0.15). Excluding them did not change these results (i.e., no significant effect became non-significant, and no non-significant effect became significant).

To uncover linguistic signatures of self-disclosure, we ran multilevel analyses using linear mixed models (also known as random coefficient, hierarchical, or multilevel models; Bliese & Hanges, 2004; Meteyard & Davies, 2020). This is a well-established and powerful method of analyzing clustered data, addressing that parent and child were nested within dyads (West et al., 2022). We used experimental condition as the focal predictor while controlling for the effect of role (parent vs. child) as well as the interaction between experimental condition and role, and we included a random intercept. We used the Restricted Maximum Likelihood estimation, accounting for nesting within dyads. We calculated the total variance explained by the models with the marginal R^2 (Nakagawa & Schielzeth, 2013). As preliminary analyses, we examined effects of self-disclosure on number of words and positive emotions. As confirmatory analyses, we examined effects of self-disclosure on nine core dimensions: negative emotions, social

TABLE 1 Correlations for demographics and main study variables per condition.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Child gender	–	0.16	−0.06	−0.09	0.17	0.06	0.18	0.07	0.16	0.19	0.05	0.01	0.26**	−0.03	−0.03	−0.12
2. Parent gender	0.08	–	−0.17	−0.22*	0.22*	0.14	0.17	−0.02	0.11	−0.10	−0.01	0.13	0.07	0.04	−0.01	−0.00
3. Child age	0.14	0.09	–	0.15	0.42***	0.32***	−0.08	0.02	−0.12	0.19*	−0.28**	0.03	0.09	−0.04	0.19*	−0.05
4. Parent age	−0.03	−0.17	0.15	–	−0.01	0.03	0.16	−0.12	−0.25*	0.08	−0.24*	−0.06	−0.12	0.05	0.21*	−0.04
5. Trait parental love	0.16	0.06	0.12	−0.02	–	0.73***	0.13	−0.11	−0.02	0.13	−0.32***	0.06	0.17	0.02	0.04	0.03
6. State parental love	0.15	0.02	0.07	−0.00	0.60**	–	0.06	−0.21*	0.03	0.05	−0.30**	0.16	0.11	0.04	−0.01	0.10
7. Word count	0.14	0.01	0.17	0.07	0.07	−0.02	–	0.07	−0.07	0.20*	−0.07	0.01	0.18	0.23*	−0.09	−0.03
8. Negative emotions	−0.03	−0.05	−0.02	−0.04	0.01	−0.08	0.00	–	0.05	0.07	0.30**	−0.12	−0.05	0.09	−0.11	−0.21*
9. Social processes	−0.20*	−0.02	−0.32***	0.16	−0.10	−0.15	−0.07	0.22*	–	0.07	0.24*	0.14	0.12	0.08	0.00	−0.03
10. Cognitive processes	0.01	0.05	0.08	0.00	0.13	0.10	0.33**	0.15	0.02	–	0.05	−0.10	0.07	0.21*	−0.08	−0.28**
11. Feeling	0.02	−0.03	−0.04	0.04	0.10	0.09	−0.11	0.46***	0.03	−0.11	–	0.01	0.01	−0.06	0.13	−0.06
12. Seeing	0.06	−0.10	−0.12	0.03	−0.07	−0.05	−0.12	−0.02	−0.09	−0.10	0.26**	–	−0.06	−0.02	−0.20*	0.14
13. Hearing	0.03	0.03	0.08	0.23*	0.02	−0.03	−0.13	0.14	0.05	0.03	0.12	0.03	–	0.11	−0.01	0.14
14. Death	−0.09	0.01	0.08	0.06	−0.10	−0.24*	−0.12	0.27**	0.28**	−0.05	0.04	0.01	0.08	–	−0.08	0.07
15. Work	−0.03	−0.11	−0.12	0.14	0.05	0.14	−0.08	0.34***	0.09	0.14	0.26**	0.07	0.08	0.05	–	0.05
16. Leisure	−0.01	0.01	−0.10	−0.11	−0.03	0.08	−0.30**	−0.04	0.02	0.01	0.02	0.22*	0.39**	0.14	0.14	–

Note: Correlations in the reciprocal self-disclosure condition are displayed above the diagonal. Correlations in the small-talk condition are displayed below the diagonal. Variables 8 through 16 reflect LIWC dimensions. Male = 1, Female = 2. Age is given in years.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

processes, cognitive processes, three cognitive processes (i.e., feeling, seeing, hearing), and three personal concerns (i.e., death, work, leisure). We conducted a separate test for each core linguistic dimension. Given that we conducted nine tests for our hypothesis pertaining to linguistic signatures, we implemented a Bonferroni-corrected α of $0.05/9 = 0.006$, two-tailed (García-Pérez, 2023). We reported original p-values but evaluated them against the more stringent criterion. Using the influence.ME package in R, we checked whether any particular dyad had an undue influence on the effect of experimental condition on the focal linguistic signatures; this was not the case (Cook's distances < 0.23). For completeness, we reported multilevel analyses on each linguistic dimension in Table S2.

4 | RESULTS

4.1 | Preliminary analyses

Table 1 displays correlations. There were no significant between-condition differences in trait parental love, child gender, parent gender, child age, and parent age, ps ≥ 0.07, indicating successful random assignment. Child gender, parent gender, child age, and parent age did not significantly moderate condition effects on state parental love, con-

trolling for trait parental love, ps ≥ 0.256, so we report findings across the full sample.

4.2 | Confirmatory analyses

4.2.1 | Parental love

As hypothesized, children experienced more state parental love after self-disclosure ($M = 2.58$, $SE = 0.03$) than after small talk ($M = 2.41$, $SE = 0.03$), controlling for trait parental love, $F(1, 212) = 12.18$, $p < 0.001$, $\eta_p^2 = 0.05$. The absence of an interaction between condition and trait parental love, $F(1, 211) = 0.05$, $p = 0.829$, $\eta_p^2 < 0.001$, indicates that self-disclosure made children feel more loved by their parent during the conversation regardless of how loved children felt by their parent in general.

4.2.2 | Linguistic signatures

Table 2 displays the means and standard deviations of linguistic dimensions across conditions. Self-disclosure and small talk did not differ in number of words, $F(1, 214) = 1.82$, $p = 0.179$. Unsurprisingly,

TABLE 2 Means and standard deviations for focal dimensions of Linguistic Inquiry and Word Count (LIWC2015) at dyadic, child, and parent level.

		Dyad				Child				Parent			
		Small talk		Self-disclosure		Small talk		Self-disclosure		Small talk		Self-disclosure	
	Examples	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Word count	–	832.06	226.32	873.55	226.19	355.85	143.80	346.18	139.34	476.20	147.56	527.37	146.01
Affective processes													
Positive emotion	love, nice, sweet	3.59	1.11	3.41	1.00	3.27	1.29	2.89	1.53	3.84	1.37	3.77	1.19
Negative emotion	hurt, ugly, nasty	0.53	0.34	1.61	0.46	0.56	0.59	1.44	0.80	0.50	0.34	1.72	0.59
Social processes	mate, talk, they	6.97	1.53	8.80	1.75	6.07	1.98	7.90	2.21	7.65	2.13	9.33	2.08
Cognitive processes	cause, know, ought	16.03	1.97	18.97	2.46	15.09	3.13	18.14	3.56	16.46	2.55	19.40	2.80
Perceptual processes													
Seeing	view, saw, seen	0.98	0.39	0.61	0.31	0.86	0.65	0.51	0.45	1.08	0.51	0.67	0.39
Hearing	listen, hearing	0.81	0.48	0.56	0.37	0.78	0.63	0.62	0.57	0.81	0.61	0.49	0.43
Feeling	feels, touch	0.25	0.22	0.71	0.35	0.21	0.31	0.55	0.45	0.29	0.27	0.80	0.45
Personal concerns													
Work	job, majors, xerox	1.28	0.50	0.41	0.27	0.98	0.71	0.38	0.41	1.52	0.74	0.43	0.32
Leisure	cook, chat, movie	1.82	0.75	0.77	0.42	1.76	0.85	0.96	0.68	1.86	0.88	0.66	0.49
Death	bury, coffin, kill	0.02	0.06	0.06	0.09	0.02	0.12	0.09	0.19	0.02	0.06	0.05	0.10

Note: Small talk = 0, Self-disclosure = 1. Examples were taken from (Pennebaker, Boyd, et al., 2015).

parents used more words ($M = 501.79$, $SD = 148.68$) than did children ($M = 351.01$, $SD = 141.34$), $F(1, 214) = 153.45$, $p < 0.001$. Interestingly, there was a significant interaction between condition and role, $F(1, 214) = 6.25$, $p = 0.013$, model $R^2_{marginal} = 0.23$. Self-disclosure led parents to use more words ($M = 527.37$, $SD = 146.01$) than did small talk ($M = 476.20$, $SD = 147.56$), $F(1, 406) = 6.80$, $p = 0.009$. This difference was not significant for children, $F(1, 406) = 0.24$, $p = 0.622$. Self-disclosure and small talk did not differ in positive emotions, $F(1, 214) = 2.41$, $p = 0.122$, but parents expressed more positive emotions during conversations ($M = 3.80$, $SD = 1.28$) than did children ($M = 3.08$, $SD = 1.42$), $F(1, 214) = 41.24$, $p < 0.001$, model $R^2_{marginal} = 0.08$.

As hypothesized, compared to small talk, self-disclosure led to conversations that reflected more negative emotions (e.g., anxiety, anger, sadness), $F(1, 214) = 313.09$, $p < 0.001$, model $R^2_{marginal} = 0.44$; more social processes (e.g., family, friends), $F(1, 214) = 63.22$, $p < 0.001$, model $R^2_{marginal} = 0.23$; and more cognitive processes (e.g., insight, cause), $F(1, 214) = 87.23$, $p < 0.001$, model $R^2_{marginal} = 0.23$. Self-disclosure instigated conversations that were more emotionally charged, social, and reflective.

We next tested whether self-disclosure also resulted in more meaningful conversations by examining perceptual processes (i.e., feeling, seeing, hearing) and personal concerns (i.e., death, work, leisure). Regarding perceptual processes, self-disclosure led to more conversations about feeling, $F(1, 214) = 115.95$, $p < 0.001$, model $R^2_{marginal} = 0.27$, whereas small-talk led to more conversations about seeing, $F(1, 214) = 59.86$, $p < 0.001$, model $R^2_{marginal} = 0.15$, and hearing, $F(1, 214) = 16.87$, $p < 0.001$, model $R^2_{marginal} = 0.05$. Regarding personal concerns, self-disclosure led to more conversations about death, $F(1, 214) = 15.68$, $p < 0.001$, model $R^2_{marginal} = 0.05$, whereas

small-talk led to more conversations about work, $F(1, 214) = 212.94$, $p < 0.001$, model $R^2_{marginal} = 0.40$, and leisure, $F(1, 214) = 147.48$, $p < 0.001$, model $R^2_{marginal} = 0.33$. Together, self-disclosure produced conversations that were more meaningful: They focused inward (on feeling) rather than outward (on seeing and hearing), and they touched on meaningful topics (including death) rather than mundane topics (including work and leisure).

For many of the linguistic dimensions (i.e., negative emotion, social processes, cognitive processes, seeing, feeling and work) there was a main effect of role, with parents showing higher levels than children did (Table S3). For some of the linguistic dimensions (i.e., negative emotion, feeling, work and leisure), there was a significant interaction between condition and role, with the effect of self-disclosure (vs. small talk) being stronger in parents (Table S3 and Figure S1; for interactions between condition and gender, see Figure S2).

4.3 | Exploratory analyses

We conducted three sets of exploratory analyses, described in the Supplementary Materials.

First, we explored whether the effects of self-disclosure on state parental love and linguistic signatures depended on the gender composition of the dyads (out of the 216 dyads in our final analyses, there were 47 father-son, 35 father-daughter, 61 mother-son, and 73 mother-daughter dyads). The effects of condition were not significantly affected by dyads' gender composition (Table S4)

Second, we explored whether linguistic signatures mediated self-disclosure effects on state parental love. A bootstrap 95% confidence

interval for the unstandardized indirect effect (ab = −0.04) using 10,000 bootstrap samples was −0.16 to 0.07, which included zero. There was no evidence for mediation.

Third, we explored the effects of self-disclosure on each state parental love item (for correlations between trait and state parental love items, see Table S5). After self-disclosure, more so than after small talk, children reported that their parents said nice things about them, were interested in what they did, made them feel wanted and needed, let them know they loved them, and treated them gently and with kindness. There were no significant differences on the other three items.

5 | DISCUSSION

How can parents make their children feel more loved in the moment? To address this question, we bridged insights from developmental science about parent-child interactions (Coffey et al., 2022; Rohner, 2004); from humanistic, social, and clinical psychology about reciprocal self-disclosure (Cozby, 1973; Hill & Knox, 2001; Jourard & Lasakow, 1958); and from applied natural language processing about the linguistic signatures of human interactions (Pennebaker et al., 2003). We built on the longstanding insight that loving relationships are characterized by reciprocal self-disclosure—inviting another person into one's private world and being invited into their private world (Branden, 1980; Jourard, 1971). We designed a proof-of-concept experimental procedure to instigate reciprocal self-disclosure between parent and child. Compared to small talk, self-disclosure made children feel more loved by their parents during the conversation and it incited conversations that were more emotionally charged, social, reflective, and meaningful. The dyad's gender composition did not significantly moderate these effects. Our research does not speak to the long-term effects of reciprocal self-disclosure on parent-child relationships or children's enduring feeling of being loved by their parents. That said, our findings do provide the first evidence that reciprocal self-disclosure contributes to children's feeling of being loved by their parents *in the moment*. Also, we offer developmental scientists a tool to examine the causal effects of reciprocal self-disclosure in parent-child dyads, paving the way for new research directions.

5.1 | Theoretical implications

What are the psychological mechanisms underlying our findings? As parents and children engage in reciprocal self-disclosure, they peel back the layers of each other's selves (Altman & Taylor, 1973). This is risky, as one might be hurt (Omarzu, 2000; Petronio, 2002) and one challenges the verticality of parent-child relationships (Finkenauer et al., 2004; Tilton-Weaver et al., 2014). Yet, as parents and children engage in it together, they establish a foundation of trust and equality. Consider, for example, this conversation between father and son. The father asked his son whether he ever misses someone. "My mother, who passed away," the child said. "Yes, mom, of course," the father

acknowledged lovingly. When his son asked him about the last time he felt alone, the father said: "When I was abroad, back then. I missed all of you." Later, the child asked his father to think back to something fun he did with a good friend: "I had a bachelor party when I got married to mom. I was together with all my friends, and we did fun things. It was nice that everyone was there." Finally, the father asked his son what he is proud of. "Uhm, just life," he said. The father concurred: "Yes, life is really great. And I am proud of my family. Of mom and the kids, of all of you." Although this constitutes just one example, conversations in the self-disclosure condition often touched on deeply personal topics (Table S1). For example, in the self-disclosure condition, 38% of the conversations touched on the topic of death, versus only 9% in the small-talk condition. In the midst of everyday hassles, parents and children may not often find the time to engage in such deep conversations. Engaging in them, even briefly, can make children feel more loved.

Our linguistic analysis of the parent-child conversations confirms our hypothesis that self-disclosure leads to deep conversations. Compared to small talk, self-disclosure did not instigate conversations that were lengthier or more positive; rather, it sparked conversations that were more emotionally charged (e.g., reflecting anger, anxiety, sadness), social (e.g., discussing family, friends), reflective (e.g., creating insight), and meaningful (e.g., addressing deeply personal topics, including the passing of loved ones). This was reflected in both the child's and the parent's word use during the conversation, with some effects being stronger in parents. However, these linguistic signatures did not mediate the effects of self-disclosure on parental love. Thus, the act of self-disclosure, rather than its content, contributes decisively to children feeling more loved by their parents. One possibility is that self-disclosure operates through non-verbal mechanisms, such as parent-child synchrony—the coordination of biobehavioral processes between parent and child, such as synchronous heart rate—which is critical for parent-child bonding (Feldman, 2012; also see Fredrickson, 2016; Prochazkova et al., 2022).

The effect of self-disclosure on children feeling loved during the conversation was robust but medium in size. One explanation is that we used a stringent control condition in which parents and children engaged in small talk. They asked each other the same number of questions as did those in the experimental condition, but the questions were more superficial (e.g., pertaining to their favorite food, last time at the zoo, or the funniest thing that ever happened to them). Yet, parents and children enjoyed the ensuing conversation. We asked parents how they experienced the conversation. One parent in the small-talk condition remarked: "A pleasure to be fully engaged in conversation with each other." Another stated: "Talking with my son is always enjoyable. It evokes my love." Although parents and children enjoyed engaging in small talk, reciprocal self-disclosure made children feel more loved during the conversation.

It is important to emphasize what our work does—and does not—demonstrate. Our work shows that when parent-child dyads are instructed to engage in self-disclosure rather than small talk, they have different types of conversations, and children feel more loved during these conversations. To be sure, our work does not speak to the long-term effects of self-disclosure on the parent-child relationship or

children's enduring feeling of being loved by their parent. Although feeling loved by one's parents is critical for children's health and well-being (Brummelman et al., 2015; Deci & Ryan, 2000; Dweck, 2017; Harlow, 1958), self-disclosure may, in some cases, instigate conversations that undercut children's health and well-being. In particular, there might be cases in which it instigates *emotional parentification* (i.e., children providing emotional support to their parents, thereby adopting an adult family role; Hooper, 2011; Kerig, 2014) or *parental co-rumination* (i.e., children extensively discussing, rehashing, and speculating about problems with their parents; Grimbos et al., 2013; Waller & Rose, 2010). For example, self-disclosure may cause emotional parentification when the parent shares too much intimate information, thereby creating role confusion; and it may cause parental co-rumination when parent and child reinforce each other's expressions of negative emotions. We call for research that examines the long-term effects of self-disclosure in everyday parent-child interactions, examining both its promises (e.g., sparking feelings of love) and its perils (e.g., causing emotional parentification or parental co-rumination).

5.2 | Strengths, limitations, and future directions

Our study has strengths, including its well-powered experimental design, its timing in middle-to-late childhood, and its in-depth linguistic analysis of parent-child conversations. It has also limitations. First, we focused on reciprocal self-disclosure, so we cannot separate engaging in self-disclosure from being the recipient of it. Meta-analytic evidence indicates that both contribute to interpersonal liking (Collins & Miller, 1994). In parent-child relationships, children may often disclose to parents without parents disclosing to them (Finkenauer et al., 2018; Villalobos Solís et al., 2015). Therefore, parents disclosing to children may be a powerful cue of love. Second, we conducted our study in an individualistic culture. Self-disclosure may be more acceptable in such cultures, which value self-expression, than in collectivistic countries, which value self-restraint (Won-Doornink, 1985). Third, our linguistic analyses focused specifically on the responses parent and child gave to the questions they asked each other. Yet, it is possible that some linguistic dimensions do partly reflect the questions they asked each other (e.g., in the small-talk condition, questions about music and movies may have more directly triggered conversations about "hearing" and "seeing"). More broadly, some studies highlighted limitations of the LIWC. In particular, LIWC emotion categories may not reliably capture subjective emotion experience (Jaidka et al., 2020; Sun et al., 2020). Data-driven machine learning-based methods may be viable alternatives to word-level methods like the LIWC.

Our findings are generative. Researchers could examine how reciprocal self-disclosure affects parents' momentary feelings of love for their children. When we asked parents in the reciprocal self-disclosure condition how they themselves experienced the conversation, many described a growing sense of love. One parent wrote: "I felt a bond and realized how special he is to me, which evoked a warm, loving feeling!" Another noted: "Throughout the conversation, I felt a growing pride and fondness of my child." Also, researchers could examine the long-

term effects of reciprocal self-disclosure via a randomized controlled trial. Targeted psychological interventions, if timed wisely, can set in motion positive spirals that contribute to sustained improvements in social relationships (Thomaes et al., 2012; Walton & Wilson, 2018). Doing so, they can examine underlying mechanisms (e.g., perceived trust and equality) and long-term outcomes.

6 | CONCLUSION

Sharing one's deepest thoughts and feelings with another person may feel daunting, especially if this other person is one's child. Our proof-of-concept experiment shows that reciprocal self-disclosure in parent-child dyads can contribute to children's feeling of being loved by their parent during the conversation. An exciting direction for future research will be to unravel the causal long-term effects of reciprocal self-disclosure in everyday parent-child interactions.

CONFLICT OF INTEREST STATEMENT
We have no conflicts of interests to disclose.

DATA AVAILABILITY STATEMENT
Via OSF: https://osf.io/ba9zs/. The study was part of a larger project on reciprocal self-disclosure in parent-child relationships.

ETHICS STATEMENT
Approved by the Ethics Review Board of the Faculty of Social and Behavioral Sciences, University of Amsterdam (2018-CDE-9735), and in line with the Declaration of Helsinki.

PERMISSION TO REPRODUCE MATERIAL FROM OTHER SOURCES
We did not reproduce material.

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REFERENCES
Alisic, E., Krishna, R. N., Robbins, M. L., & Mehl, M. R. (2016). A comparison of parent and child narratives of children's recovery from trauma. *Journal of Language and Social Psychology*, *35*(2), 224–235. https://doi.org/10.1177/0261927X15599557

Altman, I., & Taylor, D. A. (1973). *Social penetration: The development of interpersonal relationships*. Holt, Rinehart & Winston.

Aron, A., Melinat, E., Aron, E. N., Vallone, R. D., & Bator, R. J. (1997). The experimental generation of interpersonal closeness: A procedure and some preliminary findings. *Personality and Social Psychology Bulletin*, 23(4), 363–377. https://doi.org/10.1177/0146167297234003

Bianchi, S. M., Robinson, J. P., & Milkie, M. A. (2006). *Changing rhythms of American family life*. Russell Sage Foundation. http://www.jstor.org/stable/10.7758/9781610440516

Bliese, P. D., & Hanges, P. J. (2004). Being both too liberal and too conservative: The perils of treating grouped data as though they were independent. *Organizational Research Methods*, 7(4), 400–417. https://doi.org/10.1177/1094428104268542

Branden, N. (1980). *The psychology of romantic love: Romantic love in an anti-romantic age*. Penguin.

Brummelman, E., Thomaes, S., Nelemans, S. A., Orobio de Castro, B., Overbeek, G., & Bushman, B. J. (2015). Origins of narcissism in children. *Proceedings of the National Academy of Sciences, USA*, 112(12), 3659–3662. https://doi.org/10.1073/pnas.1420870112

Bülow, A., Roekel, E. van, Boele, S., Denissen, J. J. A., & Keijsers, L. (2022). Parent–adolescent interaction quality and adolescent affect—An experience sampling study on effect heterogeneity. *Child Development*, 93(3), e315–e331. https://doi.org/10.1111/cdev.13733

Carpenter, A., & Greene, K. (2015). Social penetration theory. In Berger, C. R., & Roloff, M. E. (Eds.), *The international encyclopedia of interpersonal communication* (pp. 1–4). Wiley.

Coffey, J. K., Xia, M., & Fosco, G. M. (2022). When do adolescents feel loved? A daily within-person study of parent–adolescent relations. *Emotion*, 22(5), 861–873. https://doi.org/10.1037/emo0000767

Collins, N. L., & Miller, L. C. (1994). Self-disclosure and liking: A meta-analytic review. *Psychological Bulletin*, 116(3), 457–475. https://doi.org/10.1037/0033-2909.116.3.457

Cozby, P. C. (1973). Self-disclosure: A literature review. *Psychological Bulletin*, 79, 73–91. https://doi.org/10.1037/h0033950

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Derlega, V. J., Metts, S., Petronio, S., & Margulis, S. T. (1993). *Self-disclosure*. Sage Publications, Inc.

Dindia, K. (2002). Self-disclosure research: Knowledge through meta-analyses. In Allen, M., Preiss, R. W., Gayle, B. M., & Burrell, N. (Eds.), *Interpersonal communication research: Advances through meta-analysis* (pp. 169–186). Erlbaum.

Dunbar, R. I. M. (1993). Coevolution of neocortical size, group size and language in humans. *Behavioral and Brain Sciences*, 16(4), 681–694. https://doi.org/10.1017/S0140525X00032325

Dweck, C. S. (2017). From needs to goals and representations: Foundations for a unified theory of motivation, personality, and development. *Psychological Review*, 124(6), 689–719. https://doi.org/10.1037/rev0000082

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39(2), 175–191. https://doi.org/10.3758/BF03193146

Feldman, R. (2012). Parent–infant synchrony: A biobehavioral model of mutual influences in the formation of affiliative bonds. *Monographs of the Society for Research in Child Development*, 77(2), 42–51. https://doi.org/10.1111/j.1540-5834.2011.00660.x

Feldman, R. (2017). The neurobiology of human attachments. *Trends in Cognitive Sciences*, 21(2), 80–99. https://doi.org/10.1016/j.tics.2016.11.007

Finkenauer, C., Engels, R. C. M. E., Branje, S. J. T., & Meeus, W. (2004). Disclosure and relationship satisfaction in families. *Journal of Marriage and Family*, 66(1), 195–209. https://doi.org/10.1111/j.0022-2445.2004.00013.x-i1

Finkenauer, C., Engels, R. C. M. E., & Meeus, W. (2002). Keeping secrets from parents: Advantages and disadvantages of secrecy in adolescence. *Journal of Youth and Adolescence*, 31(2), 123–136. https://doi.org/10.1023/A:1014069926507

Finkenauer, C., Kerkhof, P., & Pronk, T. (2018). Self-disclosure in relationships: Revealing and concealing information about oneself to others. In Vangelisti, A. L., & Perlman, D. (Eds.), *The Cambridge handbook of personal relationships* (2nd ed., pp. 271–281). Cambridge University Press. https://doi.org/10.1017/9781316417867.022

Fredrickson, B. L. (2016). Love: Positivity resonance as a fresh, evidence-based perspective on an age-old topic. In Barrett, L. F., Lewis, M., & Haviland-Jones, J. M. (Eds.), *Handbook of Emotions* (4th ed., pp. 847–858). Guilford Press.

Fromm, E. (1956). *The art of loving*. Harper and Row.

García-Pérez, M. A. (2023). Use and misuse of corrections for multiple testing. *Methods in Psychology*, 8, 100120. https://doi.org/10.1016/j.metip.2023.100120

Greene, K., Derlega, V. J., & Mathews, A. (2006). Self-disclosure in personal relationships. In *The Cambridge handbook of personal relationships* (pp. 409–427). Cambridge University Press. https://doi.org/10.1017/CBO9780511606632.023

Grimbos, T., Granic, I., & Pepler, D. (2013). The relation between co-rumination, maternal depressive symptoms and child psychopathology. *Journal of Psychopathology and Behavioral Assessment*, 35(3), 335–345. https://doi.org/10.1007/s10862-013-9342-9

Harlow, H. F. (1958). The nature of love. *American Psychologist*, 13, 673–685. https://doi.org/10.1037/h0047884

Hexem, K. R., Miller, V. A., Carroll, K. W., Faerber, J. A., & Feudtner, C. (2013). Putting on a happy face: Emotional expression in parents of children with serious illness. *Journal of Pain and Symptom Management*, 45(3), 542–551. https://doi.org/10.1016/j.jpainsymman.2012.03.007

Hill, C. E., & Knox, S. (2001). Self-disclosure. *Psychotherapy: Theory, Research, Practice, Training*, 38, 413–417. https://doi.org/10.1037/0033-3204.38.4.413

Hooper, L. M. (2011). Parentification. In Levesque, R. J. R. (Ed.), *Encyclopedia of adolescence* (pp. 2023–2031). Springer. https://doi.org/10.1007/978-1-4419-1695-2_169

Jaidka, K., Giorgi, S., Schwartz, H. A., Kern, M. L., Ungar, L. H., & Eichstaedt, J. C. (2020). Estimating geographic subjective well-being from Twitter: A comparison of dictionary and data-driven language methods. *Proceedings of the National Academy of Sciences, USA*, 117(19), 10165–10171. https://doi.org/10.1073/pnas.1906364117

Jourard, S. M. (1971). *The transparent self*. Van Nostrand Reinhold Company. https://sidneyjourard.com/TRANSPARENTSELFFINAL.PDF

Jourard, S. M., & Lasakow, P. (1958). Some factors in self-disclosure. *Journal of Abnormal Psychology*, 56(1), 91–98. https://doi.org/10.1037/h0043357

Kerig, P. K. (Ed.). (2014). *Implications of parent-child boundary dissolution for developmental psychopathology: "Who is the parent and who is the child?"* Routledge. https://doi.org/10.4324/9781315821085

McNeely, C. A., & Barber, B. K. (2010). How do parents make adolescents feel loved? Perspectives on supportive parenting from adolescents in 12 cultures. *Journal of Adolescent Research*, 25(4), 601–631. https://doi.org/10.1177/0743558409357235

Meteyard, L., & Davies, R. A. I. (2020). Best practice guidance for linear mixed-effects models in psychological science. *Journal of Memory and Language*, 112, 104092. https://doi.org/10.1016/j.jml.2020.104092

Mobasser, A., Vijayakumar, N., Tamir, D., & Pfeifer, J. H. (2022). *Intrinsic value of self-disclosure across adolescence*. PsyArXiv, https://doi.org/10.31234/osf.io/bdqrk

Nakagawa, S., & Schielzeth, H. (2013). A general and simple method for obtaining R^2 from generalized linear mixed-effects models. *Methods in Ecology and Evolution*, 4(2), 133–142. https://doi.org/10.1111/j.2041-210x.2012.00261.x

Nowell, C., Pfeifer, J. H., Enticott, P., Silk, T., & Vijayakumar, N. (2023). Value of self-disclosure to parents and peers during adolescence. *Journal of Research on Adolescence*, 33(1), 289–301. https://doi.org/10.1111/jora.12803

Omarzu, J. (2000). A disclosure decision model: Determining how and when individuals will self-disclose. *Personality and Social Psychology Review*, 4(2), 174–185. https://doi.org/10.1207/S15327957PSPR0402_05

Papini, D. R., Farmer, F. F., Clark, S. M., Micka, J. C., & Barnett, J. K. (1990). Early adolescent age and gender differences in patterns of emotional self-disclosure to parents and friends. *Adolescence*, 25(100), 959–976.

Pennebaker, J. W., Booth, R. J., Boyd, R. L., & Francis, M. E. (2015). *Linguistic Inquiry and Word Count: LIWC2015*. Pennebaker Conglomerates. http://liwc.wpengine.com/

Pennebaker, J. W., Boyd, R. L., Jordan, K., & Blackburn, K. (2015). *The development and psychometric properties of LIWC2015*. University of Texas at Austin. https://repositories.lib.utexas.edu/bitstream/handle/2152/31333/LIWC2015_LanguageManual.pdf?Sequence=3

Pennebaker, J. W., Mehl, M. R., & Niederhoffer, K. G. (2003). Psychological aspects of natural language use: Our words, our selves. *Annual Review of Psychology*, 54, 547–577. https://doi.org/10.1146/annurev.psych.54.101601.145041

Petronio, S. (2002). *Boundaries of privacy: Dialectics of disclosure*. State University of New York Press.

Prochazkova, E., Sjak-Shie, E., Behrens, F., Lindh, D., & Kret, M. E. (2022). Physiological synchrony is associated with attraction in a blind date setting. *Nature Human Behaviour*, 6(2), 269–278. https://doi.org/10.1038/s41562-021-01197-3

Rohner, R. P. (2004). The parental "acceptance-rejection syndrome": Universal correlates of perceived rejection. *American Psychologist*, 59(8), 830–840. https://doi.org/10.1037/0003-066X.59.8.830

Rohner, R. P. (2005). Parental Acceptance-Rejection Questionnaire (PARQ): Test manual. In Rohner, R. P., & Khaleque, A. (Eds.), *Handbook for the study of parental acceptance and rejection* (4th ed., pp. 43–106). Rohner Research Publications.

Sedikides, C., Campbell, W. K., Reader, G. D., & Elliot, A. J. (1999). Relationship closeness induction task. *Representative Research in Social Psychology*, 23, 1–4.

Sedikides, C., & Spencer, S. J. (2011). *The self: Frontiers in social psychology*. Psychology Press.

Sprecher, S., & Treger, S. (2015). The benefits of turn-taking reciprocal self-disclosure in get-acquainted interactions. *Personal Relationships*, 22(3), 460–475. https://doi.org/10.1111/pere.12090

Sprecher, S., Treger, S., Wondra, J. D., Hilaire, N., & Wallpe, K. (2013). Taking turns: Reciprocal self-disclosure promotes liking in initial interactions. *Journal of Experimental Social Psychology*, 49(5), 860–866. https://doi.org/10.1016/j.jesp.2013.03.017

Sun, J., Schwartz, H. A., Son, Y., Kern, M. L., & Vazire, S. (2020). The language of well-being: Tracking fluctuations in emotion experience through everyday speech. *Journal of Personality and Social Psychology*, 118(2), 364–387. https://doi.org/10.1037/pspp0000244

Tamir, D. I., & Mitchell, J. P. (2012). Disclosing information about the self is intrinsically rewarding. *Proceedings of the National Academy of Sciences*, 109(21), 8038–8043. https://doi.org/10.1073/pnas.1202129109

Thomaes, S., Bushman, B. J., de Castro, B. O., & Reijntjes, A. (2012). Arousing "gentle passions" in young adolescents: Sustained experimental effects of value affirmations on prosocial feelings and behaviors. *Developmental Psychology*, 48(1), 103–110. https://doi.org/10.1037/a0025677

Tilton-Weaver, L. C., Marshall, S. K., & Darling, N. (2014). What's in a name? Distinguishing between routine disclosure and self-disclosure. *Journal of Research on Adolescence*, 24(4), 551–563. https://doi.org/10.1111/jora.12090

Van Wissen, L., & Boot, P. (2017). An electronic translation of the LIWC Dictionary into Dutch. *Electronic Lexicography in the 21st Century: Proceedings of ELex 2017 Conference*, 703–715.

Villalobos Solís, M., Smetana, J. G., & Comer, J. (2015). Associations among solicitation, relationship quality, and adolescents' disclosure and secrecy with mothers and best friends. *Journal of Adolescence*, 43, 193–205. https://doi.org/10.1016/j.adolescence.2015.05.016

Waller, E. M., & Rose, A. J. (2010). Adjustment trade-offs of co-rumination in mother–adolescent relationships. *Journal of Adolescence*, 33(3), 487–497. https://doi.org/10.1016/j.adolescence.2009.06.002

Walton, G. M., & Wilson, T. D. (2018). Wise interventions: Psychological remedies for social and personal problems. *Psychological Review*, 125(5), 617–655. https://doi.org/10.1037/rev0000115

Wardecker, B. M., Kaplow, J. B., Layne, C. M., & Edelstein, R. S. (2017). Caregivers' positive emotional expression and children's psychological functioning after parental loss. *Journal of Child and Family Studies*, 26(12), 3490–3501. https://doi.org/10.1007/s10826-017-0835-0

West, B. T., Welch, K. B., & Galecki, A. T. (2022). *Linear mixed models: A practical guide using statistical software* (3rd ed.). CRC Press. https://doi.org/10.1201/9781003181064

Wiessner, P. W. (2014). Embers of society: Firelight talk among the Ju/'hoansi Bushmen. *Proceedings of the National Academy of Sciences*, 111(39), 14027–14035. https://doi.org/10.1073/pnas.1404212111

Won-Doornink, M. J. (1979). On getting to know you: The association between the stage of a relationship and reciprocity of self-disclosure. *Journal of Experimental Social Psychology*, 15(3), 229–241. https://doi.org/10.1016/0022-1031(79)90034-9

Won-Doornink, M. J. (1985). Self-disclosure and reciprocity in conversation: A cross-national study. *Social Psychology Quarterly*, 48(2), 97–107. JSTOR. https://doi.org/10.2307/3033605

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

APPENDIX

Self-disclosure condition

Set 1

1. What do you like best in NEMO?
2. If you could travel anywhere in the world, which country would you like to visit? And why?
3. What is the strangest thing that you have ever experienced?
4. Think back to a moment you felt embarrassed. What happened?
5. Is there something in your life that makes you stressed out? Why does it make you stressed out?
6. Do you ever miss someone? Whom do you miss?
7. Do you ever feel guilty? What do you feel guilty about?

Set 2

1. If you could have one wish granted, what would that be?
2. Do you ever feel nervous when meeting new people? Why?
3. What is the last time you felt alone? What made you feel that way?
4. Think back to something fun you did with a good friend. What was it? And what made it fun?
5. Did you ever experience something scary when you were younger? What was it?
6. What is one thing about yourself that most people would consider surprising?
7. What is something you are proud of?

Small-talk condition
Set 1

1. When was the last time you walked for more than an hour? Describe where you want and what you saw.
2. Do you read books sometimes? Do you have a favorite book? Which one?

3. If you could invent a new flavor of ice cream, what would it be?
4. What is your favorite food? What is last time you've had it?
5. What is your favorite holiday? Why?
6. What is the funniest thing that ever happened to you?
7. What gifts did you receive on your last birthday?

Set 2

1. Think back to the last time you went to the zoo. How was it?
2. If you could choose, would you rather go to bed early or stay up late?
3. What is/was your favorite subject at school? Why?
4. What is your favorite movie? When did you last see it?
5. When you entered NEMO today, what was your first impression?
6. What do you most like to watch on TV or Netflix?
7. Do you sometimes listen to music? What kind of music?

Note. The task took 9 min. After 4 min, the experimenter asked dyads to start with Set 2, if they had not already done so. After 9 min, the experimenter said that time was up.