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## Temporal dynamics of interpersonal trust during the transition to parenthood

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### ABSTRACT

Theories and laboratory research in social psychology associate parenthood with increased vigilance and distrust. Yet, longitudinal studies examining whether the transition to parenthood affects trust in real life are lacking. We examined the temporal dynamics of trust surrounding the transition to parenthood in a sample of adults followed for up to 12 years. We used discontinuous change models and propensity score matching to compare first-time parents with matched childless individuals. Parenthood predicted a gradual trust increase following childbirth. The effect of the transition was unidirectional: Baseline trust level did not predict the likelihood of parenthood in the follow-up years. These findings contribute to the literature on how major life events, such as the transition to parenthood, shape interpersonal trust.

### Temporal dynamics of interpersonal trust during the transition to parenthood

The transition to parenthood is one of the most change-evoking life events. It is associated with changes in individuals' social life, including shrinking friend networks and increasing contact with family (Bost et al., 2002), rising formal and declining informal social participation (Ang, 2019). These findings suggest that parenthood might have consequences for individuals' relationships with others. Does the transition to parenthood also shape individuals' beliefs about others and, more generally, human nature?

Individuals differ in the extent to which they endorse a negative, cynical versus a more optimistic view of human nature: some people are more likely to believe that most others are not trustworthy and that human actions are driven by self-interest. These generalized beliefs about human nature have been referred to as cynicism (Stavrova & Ehlebracht, 2016; Stavrova et al., 2020), cynical hostility/distrust (Smith, 1992), social cynicism (Leung et al., 2002), social trust (Rousseau et al., 1998), or interpersonal trust (Evans & Revelle, 2008). In the present research, we use the term trust to refer to generalized belief that most people are trustworthy, honest, and good (Evans & Krueger, 2009) and explore how the transition to parenthood affects changes in trust. Trust is essential for individual and societal functioning (Giordano et al., 2019; Knack & Keefer, 1997; Stavrova & Ehlebracht, 2019); yet, very

little is known about how it is shaped by major life transitions, such as parenthood. The present research contributes to this knowledge.

### 1. Development of trust following the transition to parenthood

Existing theoretical and empirical literature makes opposing predictions regarding how the transition to parenthood could affect trust. Evolutionary grounded theories of human motivation posit that humans have developed a motivational system geared towards ensuring caring responses to infants. This parental care motivational system has been recently described as being composed of two distinct components: the motivation to protect and the motivation to nurture (Hofer et al., 2018). While both of these components are aimed at increasing the survival chances of the offspring, the motivation to protect might do so by rendering parents less trustful, whereas the motivation to nurture might render parents more trustful.

The inclination to protect the offspring from harm, the protection motivation, activates a set of behavioral and attitudinal responses aimed at ensuring offspring safety. The most common responses include increased vigilance and conservative error management strategies when dealing with strangers in uncertain situations (Galperin & Haselton, 2012). The protection motivation might lead to exaggerated perceptions and reactions towards potentially threatening stimuli. Confirming these predictions, parents (vs. non-parents) have been shown to perceive

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others (e.g., pictures of purported criminals) as more formidable and dangerous (Fessler et al., 2014). The protection motivation system might also activate a more punitive response to norm violators and potentially dangerous others (Eibach et al., 2009; Hahn-Holbrook et al., 2011). For example, activating caregiving motives in parents (e.g., by reminding them of the first week after their baby was born or presenting them with baby pictures) resulted in more negative attitudes towards the outgroups (Gilead & Liberman, 2014).

Stronger risk aversion might be another outcome of an activated protection motivation. Indeed, researchers in different disciplines have noticed parents' increased aversion to taking risks (Cameron et al., 2010; Monsbakken et al., 2013; Wang et al., 2009). For example, compared to non-parents, parents display a lower investment risk tolerance (Chaulk et al., 2003). Consistent with these findings, further work has shown that making parents' identity salient in an experiment resulted in increased vigilance and decreased trust in strangers (Eibach & Mock, 2011). Taken together, these theoretical and empirical findings suggest that the transition to parenthood is likely to be associated with decreasing trust.

At the same time, the second component of the parental care motivational system – the motivation to nurture, that is, to provide support and care (Hofer et al., 2018) – may lead to an increase in trust. This motivation is often demonstrated by individuals' reactions to babies and children. For example, baby facedness (e.g., disproportionately big eyes and round face) elicits perceptions of cuteness and the motivation to take care (Glocker et al., 2009; Little, 2012). In turn, nurturing motives towards babies may have positive spillover effects towards other social agents (Rotter, 1967). Indeed, parental nurturing motivation might result in higher prosocial motives and behaviors. For example, a field study showed that adults were more likely to donate to child-unrelated charities when approached on a shopping street with more (vs. less) children present (Wolf et al., 2021).

Another reason why parenthood might be associated with increased (rather than decreasing) trust is the need for support from others ("it takes a village"). Raising children is costly; being embedded in supportive social networks and showing attitudes and behaviors that would increase one's connectedness could be adaptive for parents. Supporting this idea, experimental manipulations of parental role salience have been shown to promote perceived connections with others and interdependent self-construal (Li & Gong, 2018).

Further arguments in favor of the positive effect of parenthood on trust come from developmental psychology. The social investment principle proposes that life transitions, such as parenthood, contribute to personality maturation – a process characterized by increasing emotional stability, conscientiousness, and agreeableness (Roberts & Wood, 2006; Roberts et al., 2005). Even though most empirical studies exploring the consequences of the transition to parenthood for the development of these broad personality dimensions failed to document the expected maturation pattern (Asselmann & Specht, 2020; Denissen et al., 2019; van Scheppingen et al., 2016), individuals' commitment to the age-graded role of being a parent could still contribute to changes in more specific, narrow dimensions of individual differences, such as trust.

In sum, there are theoretical arguments for both declines and increases in trust following the transition to parenthood. Yet, empirical tests of the effect of the transition on trust changes are lacking. We detected only two (unpublished) empirical studies that reported an association between the presence of children in the household and individuals' trust, neither of which reported significant results (Alesina & La Ferrara, 2000; Sturgis et al., 2009). Importantly, none of these studies followed individuals through the transition to parenthood and were not suitable to estimate the effect of the transition on trust development.

## 2. Methodological challenges of studying parenthood and trust

Answering the question of whether and how the transition to

parenthood shapes changes in trust requires an elaborate longitudinal research design with the following elements. First, developmental studies have highlighted the need for control groups to make sure that the observed changes do not just represent age-related, normative changes but are actually triggered by the event (Luhmann et al., 2014). The importance of including a control group is being increasingly acknowledged in the studies on the transition to parenthood (Kramer & Rodgers, 2020; van Scheppingen et al., 2016) and other major life events (Buecker et al., 2020; Reitz et al., 2019).

It is particularly important to select a control group that is as similar as possible to the group of parents. Propensity score matching allows accomplishing this task (Thoemmes & Kim, 2011). This method involves computing a propensity score that reflects the probability of experiencing an event as a function of individual characteristics. Afterwards, everyone who experiences the event during the study (e.g., becomes a first-time parent) is matched with an individual who has the same propensity score but did not experience the event (Luhmann et al., 2014). In the present study, to make sure that the potential effect of the transition to parenthood on trust is due to experiencing the transition (vs. age-related normative changes), we selected individuals who were childless at baseline and compared those who became parents during the study to those who remained childless, using the propensity score matching.

Two further considerations should be taken into account when studying the effect of the transition to parenthood: selection and anticipation effects. First, there may be preexisting differences between people who end up becoming parents and those who do not. Some of these differences might be even related to the likelihood of experiencing the transition – a phenomenon referred to as selection effects. While multiple studies have documented the effect of personality (e.g., some of the Big Five) on the probability of the transition to parenthood (Jokela, 2012; Jokela et al., 2011), no study has examined the role of individual differences in trust. There are however several reasons to expect trust to be associated with an increased likelihood of parenthood. Concerns about bringing a child into a world which is full of violence and unfairness is one of the commonly mentioned reasons for voluntary childlessness (Avison & Furnham, 2015) and arguably, the pessimistic worldview held by low trust individuals might contribute to choosing a childless life. Also, outsourcing large parts of childcare to others (e.g., baby sitters, childcare facilities, schools etc.) is often unavoidable. Since trust might be an important factor facilitating these outsourcing decisions (de Ruijter & van der Lippe, 2008), low trust individuals might prefer to forgo childbearing all together, rather than entrust their offspring to strangers. In the present study, we account for these potential selection effects by explicitly testing the effect of baseline levels of trust (i.e., trust at study onset) on the likelihood and timing of the transition to parenthood using survival analysis.

Second, researchers studying event-related changes have noticed that sometimes change occurs before the event happens – a phenomenon referred to as anticipation effects (Luhmann et al., 2014). For example, in the subjective well-being literature, anticipation effects have been observed up to several years before negative life events, such as unemployment, divorce, or widowhood, happen (Lucas, 2007; Reitz et al., 2021). Given that the transition to parenthood is preceded by nine months of pregnancy and very often, an even longer period of planning, it is possible that the mere anticipation and preparation for the transition activates the parental care motivational system, resulting in changes in trust before the actual transition occurs. In the present study, to account for such anticipatory changes, we will use a prospective panel design including measurement occasions not only after but also before the event.

## 3. The present research

Using longitudinal data from a large, nationally representative sample of Dutch adults followed for up to 12 years, we examined the temporal

dynamics between the transition to parenthood and changes in trust. We tested whether the transition to parenthood is associated with post-event decreases or increases in trust (socialization effect). We additionally examined whether trust changes start before the birth of the first child (anticipation effect) and whether initial levels of trust are associated with an increased likelihood of experiencing the transition to parenthood during the study period (selection effect). We focused on first-time parents and compared their trajectories of trust to childless controls using a propensity score matching procedure. The study was not pre-registered (due to authors' familiarity with the data). The data can be downloaded from <https://www.lissdata.nl/>. Analyses scripts are available at [https://osf.io/79ap5/?view\\_only=9b01de047e38463e9d0b9f629cdeb4b7](https://osf.io/79ap5/?view_only=9b01de047e38463e9d0b9f629cdeb4b7).

## 4. Methods

### 4.1. Participants

We obtained the data from the Longitudinal Internet Studies for the Social Sciences (LISS Panel). The panel consists of about 5,000 households recruited based on a true probability sampling procedure. Since 2007, all panel members complete surveys (called modules) on different topics. These surveys are repeated annually. Trust was regularly assessed as part of the "Personality module" (that is, it was included in every assessment wave).

In addition to these surveys, one person in each household provides monthly updates regarding basic socio-demographic changes in the household life, including the number of living-at-home children in the household. Following Denissen et al. (2019), we used these data to determine birth events. We considered an increase in the number of children in the household as a "birth event". To make sure this increase was not associated with older children moving back in, we coded a birth only if the youngest household member was born in the year of the survey<sup>1</sup>. To make sure that the selected individuals are the parents of the newborn (and not the grandparents or siblings), we only retained the household members whose position in the household was either "household head", "wedded partner" or "unwedded partner".

### 4.2. Parent sample

The sample of parents included participants who experienced the transition to parenthood, that is, had their first child, during the observation period. To identify first-time parents, we selected households that had no children living at home at study onset<sup>2</sup>. For participants who became parents of more than one child during the study, we only focused on the first birth. We focused on the birth of the first child for two reasons. From a theoretical perspective, only experiencing parenthood for the first time marks the *transition* to parenthood. From an empirical perspective, the post-first child phase overlaps with the pre-second child phase, making it difficult to disentangle a socialization effect of the first birth and an anticipation effect of the second birth. Our sample of parents included 387 individuals ( $M_{\text{age at event}} = 32.86$ ,  $SD_{\text{age at event}} = 4.44$ ; 46.5% men).

### 4.3. Control sample

We selected respondents who did not have children at the study onset

<sup>1</sup> We also removed: two participants with conflicting values of their year of birth (changing throughout the annual waves), two women with age at birth above 45, and 103 participants with missing trust values in all waves.

<sup>2</sup> Some participants could have had children in previous relationships who do not currently live with them (but e.g., with an ex-partner). We used the birth year information on all children a participant ever had (from the "Family and Household module") to identify such cases; 6 participants were excluded as a result.

and who remained childless throughout the observation period ( $N = 6,139$ ). To ensure that the control sample is as similar to the parent sample as possible, we used the nearest neighbor propensity score matching procedure with replacement ( $k = 3$ , caliper = 0.90; for more details about the matching see [Supplementary materials](#)). Following Buecker et al. (2020), we matched each parent in the parent sample to three individuals in the control sample based on the following variables: age, gender, education level, presence of a live-in partner, personal monthly gross income in Euros, and the number of assessments the respondent contributed (1–12; on average, 6.08). For all time-varying variables, parents were matched with non-parents based on the values at study onset (that is, we computed participants' age, education, income and the presence of a live-in partner at the time when they joined the study). We used the MatchIt package (Ho et al., 2011) in R. Since the matching algorithm did not allow for missing values, we replaced the few missing values in education (0.2% missing) and income (3.5% missing) with sample median values. As a result of the matching procedure, each of the  $n = 387$  parents was matched with control participants (see [Table 1](#) for descriptive statistics and [Table 2](#) for the number of available assessments for parents and non-parents).

### 4.4. Sensitivity power analysis

A sensitivity power analysis (using 1000 simulations with the *simr* package (Green & MacLeod, 2016)) showed that this sample size (387 parents and 571 controls) gave us 87% power to detect an effect of at least  $b = 0.005$  (0.005 points change in trust per month) at  $\alpha = 0.05$ .

### 4.5. Measures

*Trust* was measured with one item: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? (0 = you can't be too careful; 10 = most people can be trusted)". This one-item measure has been validated in previous studies and represents a widely used measure of individual differences in trust (Johnson & Mislin, 2011; Stavrova et al., 2021; Uslaner, 2015).

Since the way individuals experience the transition has been shown to depend on socio-demographic characteristics, such as age, gender or socio-economic status (Galatzer-Levy et al., 2011; Nelson-Coffey et al., 2019), our exploratory analyses assessed whether the temporal dynamics of trust around the transition are moderated by the following variables: gender, age at birth (childless individuals were assigned the age at birth of the propensity score matched parents), education level (1 = high school, 2 = college, 3 = university), presence of a live-in partner and personal monthly gross income in Euros.

### 4.6. Analytic strategy

Since the data have a nested structure with measurement waves nested within persons, we used multilevel regression with participants and households as random effects. We considered participants and households as crossed (rather than nested) factors, since participants could move households during the observation period (indeed, 21% did). Also, since the 1:2 matching procedure resulting in the repeated use of control subjects (i.e., the same non-parent could serve as a control for multiple parents) and in matched subjects being additionally nested within matching sets, we include the matching set as a random effect too. The models were estimated using the package *lme4* (Bates et al., 2015) in R.

To estimate temporal trajectories of trust before and after the transition to parenthood, we used discontinuous change models (Singer & Willett, 2003). The model included the following time indicators (we used the same coding scheme as described in Denissen et al. (2019)):

**Table 1**  
Descriptive statistics, parents and matched controls.

	Variable	Parents		Matched controls		Standardized mean differences		p
		M	SD	M	SD	Full sample	Matched sample	
Used for propensity score matching	Gender	0.47	0.50	0.45	0.50	-0.0064	0.0207	0.77
	Age (at study onset)	28.10	5.20	28.15	9.26	-3.2637	-0.0099	0.91
	Education	1.95	0.67	1.93	0.70	0.4138	0.0154	0.78
	Partner	0.88	0.33	0.90	0.30	1.0163	-0.0666	0.31
	Income	2,072.41	1,344.16	1,962.75	3,982.84	-2.6472	0.0793	0.50
	Number of assessments	5.68	3.33	5.53	3.60	0.4450	0.0430	0.49
	Average trust	6.18	1.78	6.15	1.76			0.77

Note. Gender: 1 = male, 0 = female. Partner: 1 = yes, 0 = no. For all time-varying variables, parents were matched with non-parents based on the values of covariates at study onset. Average trust refers to the average level of trust across all study waves.  $p = p$  value of Chi-square test (gender and partner) or a  $t$ -test. Standardized mean differences were obtained from the MatchIt package.

**Table 2**  
Number of assessments (with non-missing trust values) per person, separately for parents and matched controls (non-parents).

	Number of assessments available per person with non-missing trust values											
	1	2	3	4	5	6	7	8	9	10	11	12
Matched non-parents												
N	108	99	101	52	55	78	36	43	44	52	46	58
% (of all matched non-parents)	14.10	12.81	13.07	6.73	7.12	10.09	4.66	5.56	5.69	6.73	5.95	7.50
Parents												
N	39	44	41	36	37	49	21	34	15	23	26	22
% (of all parents)	10.08	11.37	10.59	9.82	9.56	12.66	5.43	8.27	3.88	5.94	6.72	5.68

Note. Additional analysis including only participants with at least two non-missing assessments of trust results in the same results (see Table S4 in the Supplementary materials).

- Event variable, a dummy variable indicating whether the respondent experienced the transition (parent sample, coded as '1') or not (matched control sample, coded as '0').
- Post-event baseline change variable, a dummy variable with values of 0 for waves before the event and values of 1 in the wave when the event happened and all the waves after that. The coefficient of this variable reflects a baseline shift in trust after the event (i.e., difference in trust during all the years before and all the years after the event).
- Socialization variable with values of 0 on all the waves preceding the event and positive values on the waves following the event. The coefficient of this variable reflects the linear change in trust following the transition.
- Anticipation variable with negative values on the waves preceding the event and value of 0 in the year of the event and all the following waves. The coefficient of this variable reflects the linear change in trust leading up to the transition.
- First-year variable with values of 1 during the year of the birth and 0 for all other waves. Its coefficient indicates a brief change in trust during the year immediately following the transition.

All these time variables had a value of '0' for individuals in the control sample (who never experienced the transition); the model coefficients therefore reflect changes in trust in the parent sample, above and beyond the changes experienced by the propensity-score matched control sample. The model additionally included linear and quadratic terms of age at birth and gender.

## 5. Results

### 5.1. Descriptive statistics

Table 1 presents average trust levels for each wave separately for the sample of parents and matched controls. Parents did not differ from childless controls in average trust levels across the waves ( $p > .10$ ).

### 5.2. Discontinuous change Model: Anticipation and socialization effects

The model estimates are presented in Table 3. The effect of the linear socialization variable reached significance. Every year following the birth of the first child was associated with an 0.12 increase in trust (0.01 × 12 months; note that trust was measured on an 11-point scale). The temporal dynamics of trust surrounding the transition are shown on Fig. 1. Of all other variables, only gender had a significant effect, such that men reported higher trust than women.

Model 2 included random effects of all time variables. We tested the significance of random slopes using a chi-square deviance test that compared the model with just fixed effects against the model with random slopes (entered one at a time). The random slopes of all time indicators but one (first-year) were significant, pointing at between-individual heterogeneity in the temporal dynamics of trust surrounding the birth of the first child.

To explore whether this heterogeneity could be explained by individual differences in socio-demographic characteristics (gender, age, live-in partner, education, income), we estimated a series of models including interaction effects between time predictors and one socio-demographic variable at a time, resulting in 4 models with 8 interaction terms each. None of the interaction terms reached significance. The results are summarized in Table S1 (SOM).

Finally, in a set of additional analyses, we modelled the transition separately for parents and the matched controls. Since we were mainly interested in testing the effect of socialization, we compared two models: the model that included the intercept only (null model) and the model that included the socialization variable (post-event linear change model). We compared the models using AIC and BIC indicators. For parents, the post-event linear change model fit the data better; while for non-parents, there was no conclusive evidence that either of the models fit the data better. These results are presented in detail in the Supplementary materials.

### 5.3. Assessing selection effects using survival analysis

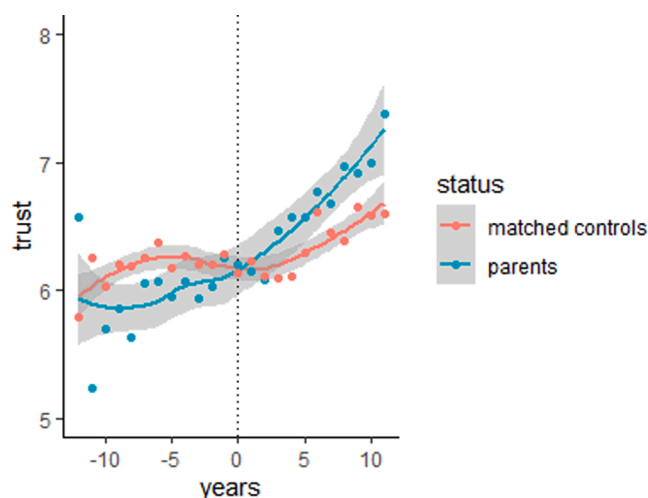
We used survival analysis to examine whether more trustful



**Table 3**  
Discontinuous change model.

	Model 1			Model 2		
	<i>b</i>	95% CI	<i>p</i>	<i>b</i>	95% CI	<i>p</i>
Intercept	6.17	6.02 – 6.32	<0.001	6.17	6.02 – 6.32	<0.001
Group	0.05	–0.21 – 0.31	0.714	0.05	–0.21 – 0.32	0.683
Post-birth baseline change	–0.21	–0.43 – 0.00	0.052	–0.20	–0.45 – 0.05	0.117
Socialization	0.01	0.00 – 0.01	<0.001	0.01	0.00 – 0.01	0.001
Anticipation	0.00	–0.00 – 0.01	0.052	0.00	–0.00 – 0.01	0.070
First year	0.13	–0.09 – 0.35	0.256	0.12	–0.12 – 0.36	0.336
Age at birth	0.01	–0.01 – 0.03	0.269	0.01	–0.01 – 0.02	0.294
Age at birth, squared	–0.00	–0.00 – 0.00	0.942	–0.00	–0.00 – 0.00	0.878
Gender	0.14	0.04 – 0.25	0.006	0.14	0.04 – 0.25	0.006
<b>Random Effects</b>						
Post-birth baseline change				0.7200 <sup>#</sup>		
Socialization				0.0002 <sup>#</sup>		
Anticipation				0.0001 <sup>#</sup>		
First year				0.3108		

Note. <sup>#</sup> significance of random slope ( $p < .001$ ). Group: 1 = parents, 0 = propensity score matched controls; Gender: 1 = male, –1 = female. For the control sample, age at birth is age at the year in which the propensity-score matched parent experienced the transition. The coefficients of anticipation and socialization can be interpreted as expected change in trust per month.



**Fig. 1.** Trust dynamics around the transition to parenthood. Note. 0 indicates the year of birth; for the control sample, it is the year in which the propensity-score matched parent experienced the transition. Data points represent average trust in each assessment year, reported by parents and matched control participants. The graph was created using the loess function of ggplot2.

individuals were more likely to become parents in the first place. Since the timing of the event had a relatively precise resolution (monthly), we relied on a Cox proportional hazard model. We measured time-to-event in months, starting from the month of joining the panel till the month of the birth of the first child or censoring (study termination without experiencing the event). In alternative analyses, we used participants' age as a metric of time-to-event; these analyses produced the same results (see SOM). To account for the clustered nature of the data (individuals and households), we used robust sandwich variance estimators (for a similar procedure, see Stavrova, 2019). We used the survival package (Therneau, 2015) in R.

We selected participants who did not have children at study onset ( $N = 6,526$ ). We removed 7 participants who became parents during the first year of the study and 30 participants who had missing trust values<sup>3</sup>. The final sample consisted of 6,489 ( $M_{age} = 44.13, SD_{age} = 19.40, 46.8\%$

<sup>3</sup> For all 6,526 participants, trust has been measured at least in one wave. For 30 participants, the only valid measure of trust was collected in the waves following childbirth, resulting in missing values in the present analyses.

male). Of those,  $n = 350$  participants became parents during the observation period. We estimated whether initial levels of trust predicted whether the participant became a parent during the observation period.

Participants who became parents did not differ from participants who remained childless in their baseline trust values ( $t(396.4) = 1.04, p = .30$ ). The results of the Cox model showed that the baseline level of trust was not significantly associated with the likelihood of becoming a parent ( $OR = 1.06, p = .30, 95\% CI [0.95; 1.19]$ ). Further exploratory analyses showed that younger baseline age ( $OR = 0.94, p < .001, 95\% CI [0.93; 0.94]$ ), having a partner ( $OR = 3.54, p < .001, 95\% CI [2.57; 4.89]$ ) and higher education ( $OR = 2.93, p < .001, 95\% CI [2.53; 3.40]$ ) were associated with a higher likelihood of the transition to parenthood.

## 6. Discussion

Drawing from the literature on the parental care motivational system, which suggests that parental care is driven by two different motivations (Hofer et al., 2018), we tested two opposing predictions regarding the effect of parenthood on trust. On the one hand, the motivation to protect might render the new parents cautious and oversensitive to risks, which might decrease trust (Eibach & Mock, 2011). On the other hand, the motivation to nurture and a stronger commitment to the parental role might contribute to an increase in prosocial values after childbirth (Roberts & Wood, 2006; Wolf et al., 2021), which might increase trust.

To examine the effect of the transition to parenthood on trust development, we estimated a discontinuous change model with a Dutch sample of first-time parents and propensity score matched childless controls followed for up to 12 years. Our results showed a linear increase in trust following the transition to parenthood. No similar trend emerged in the sample of the propensity score matched controls, suggesting that the observed trust development in parents is unlikely to be due to more general age-related or normative changes in trust. We did not find evidence for anticipation effects: trust started rising after childbirth, not in anticipation of it. Nor did we detect any selection effects: individuals who became parents during the study did not significantly differ in their average level of trust from individuals who remained childless. Also, survival analyses showed that participants' trust at the study onset was not associated with a higher likelihood of parenthood in the follow-up.

How large is the observed linear change in trust after the transition? Following the transition, the new parents are expected to experience trust increase at a rate of 0.12 points per year, accumulating to up to 1.44 points (on an 11-point scale) for the period of 12 years. This reflects a larger effect than the effect of the well-established predictors of trust,

such as education (Frederiksen et al., 2016; Stavrova & Ehlebracht, 2018) (e.g., we detected a 0.22-point difference in trust associated with a one standard deviation difference in education, Table S5 in the Supplementary materials).

Interestingly, even though we discovered a change in the developmental trajectory in trust after the transition (compared to before), there was no baseline shift in trust following childbirth. In other words, people do not just become more trustful immediately after the transition, rather, they experience a continuous linear growth in trust during the post-transition years. Arguably, compared to other outcomes immediately impacted by childbirth, such as satisfaction with sleep and personal income for women (Kramer & Rodgers, 2020), the effect of the transition on trust needs longer to take shape.

## 7. Limitations and future directions

While the present research has demonstrated that the transition to parenthood might contribute to rising trust, the underlying mechanisms of this effect remain unknown. From the perspective of the literature on the parental care motivation system (Hofer et al., 2018), the transition to parenthood might activate the motivation to nurture, provide support and care, which would subsequently lead to increasing trust. In addition, the transition might set in motion a process of adjustment and changes in behaviors and lifestyles, which slowly and gradually contributes to rising trust levels. For example, parenthood usually increases one's dependence on others: parents need to rely on others' support and help, including babysitters, teachers, childcare facilities, school bus drivers etc. The necessity to trust others might trigger a stronger endorsement of the belief in the trustworthiness of others due to motivated reasoning. Motivated reasoning describes a phenomenon where people are more likely to believe information that is consistent with (vs. contradicting) what they want or need to believe (Kunda, 1990). Hence, parents' need to trust others might lead them to believe that others are generally trustworthy.

It is also possible that parenthood leads to changes in individuals' social networks (Belsky & Rovine, 1984), fostering the contact with more mature, socially responsible, and trustworthy others, which could result in increasing trust. Egocentric projection might be another mechanism underlying trust increase following childbirth. Parenthood is linked to a lower likelihood of antisocial behaviors, such as criminal activities (Laub & Sampson, 2001; Monsbakken et al., 2013), and could therefore potentially contribute to increasing trustworthiness. Combined with the finding showing that people's judgment of others' trustworthiness is often shaped by their judgment of their own trustworthiness (egocentric projection; Posten & Mussweiler, 2019), it might explain why individuals experience an increase in trust following childbirth.

Another unresolved question for future studies concerns between-individual heterogeneity in trust dynamics. In our analyses, the effects of all but one time variable (first-year) showed significant random slopes pointing at between-individual variability in trust trajectories. This variability could not be explained by basic socio-demographic characteristics, such as gender, age, the presence of partner, or socio-economic status (education, income). Hence, we encourage future studies to document what other individual, couple or larger societal characteristics explain why the transition might shape the dynamics of trust differently. Even though between-individual differences in socio-economic status did not moderate the effect of the transition, the level of economic security and resource availability at the macro level (e.g., neighborhood, city, or country) might be important for determining whether parenthood leads to increases or decreases in trust. For example, the positive effect of the transition found here might be restricted to relatively wealthy western (e.g., WEIRD) countries, such as the one where the present study was located: the Netherlands.

In addition, cross-cultural differences in trust might affect the pattern of trust development following childbirth. Since parents transmit

cultural values to their children, becoming a parent might increase one's commitment to the own culture, including the cultural beliefs regarding trust. While we documented an upward trajectory in trust following childbirth in a high-trust culture (the Netherlands; Bjørnskov, 2007), longitudinal cross-national studies are needed to examine whether this pattern reverses in low-trust cultures.

For theoretical and methodological reasons, in the present study we exclusively focused on first-time transitions. Yet, for many couples, childbirth represents a repeated life event (Mundy, 2021). Hence, future studies might want to explore whether the effect of the transition on trust documented here extends to second and further births. While studies on the repeated transition to parenthood are rare (van Scheppingen et al., 2018), research on other life events (e.g., unemployment) suggests that the effect might both, increase (sensitization pattern) or decrease (adaptation pattern) with each repetition, or might not change at all (stability pattern) (Luhmann & Eid, 2009; Reitz et al., 2021). Future studies will have to establish whether the repeated experience of parenthood leads to sensitization, adaptation, or stability patterns in trust. Finally, the generalizability of the current findings to other cultural contexts (than the Netherlands) needs to be established in future research.

Finally, our conclusions are limited by the use of a one-item measure of trust. This measure has been established as a valid indicator of generalized trust, that is, trust in most people or human nature in general (Johnson & Mislin, 2011; Stavrova et al., 2021; Uslaner, 2015) and does not capture the distinction between trust in strangers versus trust in close others. This distinction however could be important since the two motivational systems assumed to be activated by the transition to parenthood (i.e., to protect versus to nurture), could be associated with decreasing trust in strangers and increasing trust in close others. Hence, we encourage future studies on the transition to parenthood to assess these different types of trust.

The present study contributes to multiple streams of literature. First, it contributes to the literature on antecedents and consequences of trust. While trust research has been prolific in establishing different individual (e.g., education, personality) and societal (e.g., ethnic diversity) characteristics as predictors of trust (Stavrova et al., 2021), it has ignored the question of the role of major life events in trust development. The present research suggests that while trust is unlikely to contribute to parenthood, parenthood seems to have long-lasting positive consequences for trust. It might be worthwhile to extend the present findings to further life events that could shape and be shaped by trust (e.g., marriage, divorce, unemployment).

Second, the present study adds to developmental psychology and the literature on personality change during life transitions. Specifically, the pattern of increasing trust following childbirth is consistent with the social investment principle (Roberts & Wood, 2006). Drawing from this principle, prior research in developmental psychology mostly investigated how the transition to parenthood affects some of the Big Five traits, including agreeableness. Yet, most of these studies did not detect significant changes in agreeableness following the parenthood transition (Denissen et al., 2019; van Scheppingen et al., 2016). Yet, our results hint at the possibility that the transition might affect some facets of agreeableness (e.g., trust) but not others (e.g., straightforwardness or modesty), suggesting that a facet-level analysis might be needed as a more sensitive test of the theory.

Finally, our results contribute to the literature on the transition to parenthood. Ample research on parenthood across different areas (developmental, medical, personality psychology, sociology and economics) has studied the consequences of the transition for parents' life outcomes. Yet, most of these studies focused on how the transition affects different aspects of well-being, including life satisfaction, depression, relationship satisfaction, self-esteem or loneliness; and a more recent stream of literature started investigating the role of the transition in personality development (e.g., van Scheppingen et al., 2018). Much less is known about whether and how the transition to parenthood

affects values, beliefs and attitudes. The present study adds to this literature by documenting the temporal dynamics of trust surrounding the birth of the first child. Despite increasing appeal of cautious and vigilant parenting (Katz, 2001), we have shown that the transition to parenthood is associated with rising rather than decreasing belief that most people can be trusted.

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### Contribution

All three authors developed the study concept. OS analyzed the data and drafted the manuscript. AR and AE provided critical revisions.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jrp.2022.104188>.

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