



Contents lists available at ScienceDirect

Journal of Experimental Child Psychology

journal homepage: www.elsevier.com/locate/jecp



Parenting by lying and children's lying to parents: The moderating role of children's beliefs



Petrina Hui Xian Low^a, Yena Kyeong^b, Peipei Setoh^{a,*}

^a Division of Psychology, School of Social Sciences, Nanyang Technological University, Singapore 639818, Singapore

^b Department of Psychology, Faculty of Arts and Social Sciences, National University of Singapore, Singapore 117570, Singapore

ARTICLE INFO

Article history:

Keywords:

Lying
Socialization
Parenting
Parental Lies
Dishonesty
Parenting by Lying

ABSTRACT

How are children socialized about lying? One way is parental modeling of lying given that parents tell various lies to their children for parenting purposes, which is a practice known as parenting by lying. Importantly, how children perceive and interpret the lying behavior around them may be crucial to how they then learn to lie. Yet, we do not know how children's perceptions of different types of parental lies drive this socialization. In a comprehensive birth cohort of parent-child dyads ($N = 564$; children aged 11 and 12 years) in Singapore, we collected multi-informant reports of instrumental lies (parental lies told for child compliance) and white lies (parental lies told to instill positive emotions), children's belief in parental lies, and children's lying to parents. We found greater consistency in parent and child reports of instrumental lies than of white lies and that children reported greater belief in instrumental lies than in white lies. Children's reported exposure to instrumental lies was associated with greater lying to parents. However, for white lies this relationship was evident only when children had moderate to low beliefs in parental lies. Examining the interplay between parental lies and children's beliefs in those lies, the current study illuminates the potential pathways to children's lying behaviors.

© 2023 The Author(s). Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

* Corresponding author.

E-mail addresses: S210015@e.ntu.edu.sg (P.H.X. Low), ykyeong@nus.edu.sg (Y. Kyeong), psetoh@ntu.edu.sg (P. Setoh).

Introduction

Honesty is a deeply valued social expectation that parents emphasize in their children's moral development. Despite emphasizing honesty, parents often lie to their children, potentially creating conflicting messages about the value and practice of honesty (Heyman et al., 2009; Talwar et al., 2022). When children observe their parents' lie-telling, they become socialized about the appropriateness of lying (Bandura, 1977; Grusec & Davidov, 2010). Extant literature also suggests that when children are exposed to parents' lies, they are more likely to engage in lying behaviors themselves (e.g., Jackson et al., 2021). Notably, given that children's appraisal or interpretation of parenting behaviors may moderate the effect of socialization practices on child outcomes (e.g., Bornstein et al., 2018), whether children believe the parental lies told to them may be important to how children learn about and exhibit lying behavior. Focusing on pre-adolescence, when children have a more sophisticated understanding of lying (Engels et al., 2006), the current study examined how children's exposure to parenting lies and their belief in parenting lies relate to children's lying behaviors. We specifically focused on children's lying behaviors toward parents because such behaviors have been found to be related to behavioral problems, poorer parent-child relationships, and greater likelihood of risky behavior during adolescence (Darling et al., 2006; Engels et al., 2006; Stattin & Kerr, 2000).

Parenting by lying

Parenting by lying is a subset of lies parents may tell their children. This practice differs from other types of lies that we may tell in that these parenting lies have specific intentions to socialize their children, that is, to influence or alter their children's behavior (i.e., instrumental lies) or induce positive emotions (i.e., white lies) (Heyman et al., 2009). Specifically, *instrumental* lies are told by parents to elicit behavioral compliance from their children. For example, parents may tell children "I did not bring money with me today!" so they do not need to buy their children a toy or "If you keep misbehaving, I will call the police!" so their children will stop misbehaving. Within the study of parenting by lying, instrumental lies have been studied extensively because they are relatively more prevalent and unambiguous compared with other forms of parental lies (Heyman et al., 2013). In Heyman et al.'s (2013) study, the majority of participants (98% in the Chinese sample and 84% in the U.S. sample) reported telling at least one instrumental lie to their children. Young adults and adolescents who were surveyed across a range of countries, such as the United States, Canada, China, Turkey, and Singapore, reported being told instrumental lies by their parents (Jackson et al., 2021; Liu & Wei, 2020; Santos et al., 2017; Setoh et al., 2020). These findings suggest that instrumental lies are prevalently used by parents across diverse cultures. On the other hand, *white lies* are lies that parents tell to promote positive feelings for their children. For example, parents may tell their children "That was beautiful piano playing!" even when the playing was terrible. It has been found that 83% of Singaporean parents, 71% of Chinese parents, and 67% of American parents in prior research reported telling at least one white lie to their children (Heyman et al., 2013; Setoh et al., 2022). Together, it is evident that white lies are commonly used by parents, although not as frequently as instrumental lies.

Importantly, retrospective studies indicate that parenting by lying may have downstream consequences for children's outcomes. For example, young adults' and adolescents' recalled that exposure to parents' instrumental lies was associated with suboptimal psychosocial adjustment such as internalizing and externalizing problems and psychopathy (e.g., Dodd & Malm, 2023; Liu & Wei, 2020; Santos et al., 2017; Setoh et al., 2020). However, these existing studies have focused on instrumental lies and not white lies, precluding us from understanding how exposure to white lies may be linked to important developmental outcomes (Santos et al., 2017). Due to its underlying prosocial intention, parents' white lies may be interpreted as more benign and acceptable by children (Cheung et al., 2015); thus it may confer differential effects on child outcomes from instrumental lies. Relatedly, Mann et al. (2014) found that in adults lying tendencies are shared by socially connected pairs (e.g., parent-child dyads, friends), but in parent-child dyads the pattern of such social transmission held only for prosocial lies but not antisocial lies. Applying this to how children learn about lying, their lying may be uniquely predicted by their parents' lying, depending on its type. Such varying implica-

tions of parental lies by type may start to emerge during pre-adolescence as children display a shift in evaluation of prosocial lies from negative to positive at around 9 years of age (e.g., [Cheung et al., 2015](#)) or 11 years of age (e.g., [Allen & Kara, 2023](#)). Taken together, prior research suggests the importance of examining the potential differences in children's perceptions and implications of instrumental and white lies for child outcomes such as children's lying.

Lying to parents

[Bandura's \(1977\)](#) social learning theory proposed that children acquire social behaviors through their experiences and observations of others' behaviors, particularly if the observed person is of a valued status. Socialization frameworks build on this to suggest that children are socialized by being exposed to appropriate cultural practices by their parents and learn to participate in these practices themselves ([Grusec & Davidov, 2010](#)). By being exposed to and observing social agents' lies, children acquire an understanding that people lie and under what conditions lying may be appropriate. For example, children model lying behavior from observations of non-kin adults and their peers ([Hays & Carver, 2014](#); [Ma et al., 2018](#)). Given their important status to children, parents serve as uniquely salient models of lying that children observe and learn from ([Grusec, 2002](#); [Talwar et al., 2022](#); [Tong & Talwar, 2021](#)). This may also relate to transactional processes of dishonesty within parent-child dyads because children are more likely to lie to their parents after being lied to themselves ([Shaw et al., 2009](#)). Indeed, retrospective studies have found that exposure to parenting by lying was associated with more lying to parents ([Dodd & Malm, 2023](#); [Jackson et al., 2021](#); [Santos et al., 2017](#); [Setoh et al., 2020](#)). Of note, prior research suggests that this relationship might be an important pathway mediating the relationship between exposure to parental lies and psychosocial outcomes. For example, young adults' recollections of parents' instrumental lies were associated with more lying to parents, which in turn was associated with more externalizing problems, internalizing problems, and psychopathy ([Dodd & Malm, 2023](#); [Jackson et al., 2021](#); [Santos et al., 2017](#); [Setoh et al., 2020](#)).

Whereas some evidence indicates that parental lies recalled by adult children are associated with more lying behaviors (e.g., [Jackson et al., 2021](#)), scant research has investigated the implications of parenting by lying for child outcomes during childhood, that is, while children are being exposed to parental lies. Moreover, findings on concurrent associations during childhood in the extant literature are somewhat inconclusive and could be driven by using parents' perspectives only. For example, [Talwar et al. \(2022\)](#) found that parental modeling of lying (i.e., lies told by parents to or in the presence of their children) did not predict 6- to 14-year-old children's problematic lying behavior reported by parents. Similarly, [Dykstra and colleagues' \(2020\)](#) work revealed that parents' modeling of lying (e.g., lie-telling) was not associated with 8- to 14-year-old children's lying behaviors reported by children. However, in this study parents' modeling behaviors were predictive of their own reports of children's lying, suggesting that parental reports of child lies may be biased by parents' own behaviors. Together, it is possible that empirical findings may be subject to parents' self-presentation or social desirability bias when all measures are assessed by parental reports. Given the key role of children's appraisal and construal of parental behaviors in their socialization ([Davidov, 2021](#)), we propose that children's perceptions of parental lies may have larger implications for child outcomes such as lying to parents.

Lying to parents may hold particular significance during adolescence when children's lying becomes more sophisticated and frequent ([Engels et al., 2006](#)). Although lying is a common behavior in children as young as around 3 years, children's concepts and judgments of lying continue to develop through middle childhood and adolescence, reflecting their maturing understanding of lies, sociocognitive competencies, and values ([Gingo et al., 2020](#); [Heyman et al., 2019](#)). Moreover, lying during adolescence serves as an early indicator of behavioral problems as well as lower-quality parent-child relationships due to dishonest communication ([Engels et al., 2006](#)). For example, adolescents who lied more frequently (vs. less frequently) to their parents also showed higher levels of problem behavior and lower endorsement of parental legitimacy and obedience ([Darling et al., 2006](#)). More lying to parents also impedes parenting practices, such as parental monitoring or supervision, that may buffer against risky behavior during adolescence ([Stattin & Kerr, 2000](#)), highlighting the importance of studying lying behaviors within parent-child dyads.

Belief in parental lies

Children play an important role in their socialization through their appraisals and interpretation of the practices they are exposed to (e.g., [Bornstein et al., 2018](#)). Children's experience—that is, how children interpret and process the parental lies they are exposed to—plays a key role in understanding how they are socialized about lying in this way. Yet, most prior research on parenting by lying has mainly focused on parents' lying behaviors and their outcomes per se, posing an important gap in the literature about the conditions or potential moderators that play a role in this relationship ([Setoh et al., 2023](#)). To address this gap, we focused on one aspect of children's experience, namely children's belief in the parental lies they are told (i.e., whether they think that parental lies are true), in our exploration of how parental lies may be associated with children's lying. It is possible that in some cases children do not detect that their parents are lying to them in the moment and only recognize that they have been lied to later ([Santos et al., 2017](#)). Then, how would such perceptions of factuality of parental lies play a role in the implications of these parental lies for child outcomes?

Research shows that children who identify adults' dishonesty were more likely to be dishonest themselves ([Hays & Carver, 2014](#)), and young adults who recalled their parents' lies were also more likely to lie to their parents ([Dodd & Malm, 2023](#); [Santos et al., 2017](#); [Setoh et al., 2020](#)). As such, it is possible that children's belief in parental lies may interact with their parents' lying. Specifically, children who are able to detect that they have been lied to (i.e., holding lower belief) may learn about the appropriateness of lying in the situations that they observe, which could lead them to tell more lies as compared with children who do not realize their parents' deception. That is, parenting by lying may lead to children telling more lies if they do not believe in those lies given that they would be able to identify those statements as untrue and encode these situations into their understanding of lying. Yet, so far there have not been studies that examined this potential condition in which parenting by lying may socialize children about lying. Hence, our study would be the first to lend a unique perspective on the implications of parenting by lying for children's lying by also considering children's belief in parental lies as a possible moderator.

Overview of study

The current study investigated the relationship between parenting by lying and children's lying. Whereas prior research provides preliminary evidence for this relationship, our study aimed to extend the extant literature in several ways. First, departing from prior research mainly using either retrospective reports of young adults and adolescents or parent-reported study designs, we investigated children's perspectives on parenting by lying during childhood. Specifically, we focused on pre-adolescence (i.e., 11 and 12 years of age), a period when children's concepts of lying become more sophisticated, with notable implications for their adjustment. This design also allowed us to explore the potential differences between parent and child reporters' perceptions in parenting by lying and child lying during childhood. Second, we sought to expand our knowledge on the potentially differentiated implications of types of parental lies (i.e., instrumental vs. white lies) for child outcomes. Third, given the active role of children in their socialization process, we focused on how children hear and interpret parental lies by examining their reported exposure to and belief in parental lies. Moreover, we focused on the moderating role of children's belief in parental lies in the relationship between child-reported exposure to parental lies and children's lying. Lastly, our study aimed to situate parental lies within other aspects of parenting. Given that parenting by lying, especially instrumental lies, has intentions for parents to exert control over their children, it may co-occur with other negative parenting practices (e.g., controlling, non-reasoning parenting) that are predictive of children's lying ([Tong & Talwar, 2021](#)). This is particularly relevant to the Singaporean context in which harsh parenting (e.g., physical discipline) that has been linked to children's behavioral outcomes is commonly used ([Sudo et al., 2023](#)). To identify the unique relationship between parenting by lying and children's lying, the potential confounding effect of other negative parenting practices was accounted for in the sensitivity analysis.

Building on the literature, we sought to address two research questions. First, *how are children exposed to and believing in parental lies, and are there differences in their perceptions of instrumental*

and white lies? Given that young adults were able to retrospectively recall exposure to parental lies, children may likewise be able to report on the parental lies they hear during childhood. Hence, we hypothesized that children would be able to report both instrumental and white lies that would be consistent with their parents' reports. However, given that no studies have been conducted on children's belief, we held no hypotheses for the extent of children's belief in instrumental or white lies. Second, *how are children's exposure to and belief in parental lies associated with their lying to their parents?* Based on empirical evidence for instrumental lies, we hypothesized that the more children reported exposure to parental lies, the more they would also report lying to their parents. We further explored whether the relationship between exposure to parental lies and children's lying is moderated by children's belief in parental lies given that their belief or lack of belief would play a role in how they understood lying and were similarly socialized about lying. Specifically, we expected that the exposure to parental lies would be associated with more lying to parents for children who believed less in the parental lies heard. We also considered whether parental lies would be significantly associated with children's lying to parents after controlling for other negative parenting practices.

Method

Participants

We drew on parent-child dyads from the Growing Up in Singapore Towards Healthy Outcomes (GUSTO) study. This is a large birth cohort study where participants were recruited in 2009 and 2010 at the Kandang Kerbau Women's and Children's Hospital and the National University Hospital in Singapore (Law et al., 2021; Soh et al., 2014). This study tapped into the Year 11 and Year 12 time-points, collected from 2021 to 2023, consisting of parent-child dyads who consented and completed the measures of interest at the timepoint and provided demographic information at recruitment.

Our sample consisted of 564 Singaporean parent-child dyads. Parents were mostly mothers (95.5%) and of the major ethnic groups in Singapore, being majority Chinese (61.4%), followed by Malay (25.8%), Indian (12.7%), and other ethnicities (0.2%). Parents reported a broad range of educational backgrounds (4.2% primary education, 23.7% secondary education, 36.3% postsecondary education, and 35.8% university education) and household income ranges (13.2% of parents reported <2000 SGD, 29.2% reported 2000–3999 SGD, 26.7% reported 4000–5999 SGD, and 30.9% reported ≥6000 SGD per month; the median was 4000–5999 SGD; 1000 SGD = 750 USD). The distribution of household income aligned with the overall income distribution in Singapore at the time of recruitment, where the median gross monthly income was reported as 5000 SGD (Singapore Department of Statistics, 2011). Children were 11 and 12 years old ($M = 11.25$ years, $SD = 0.35$) and were evenly balanced in sex (46.9% female). Ethical approval for the overall GUSTO study was approved by the National Healthcare Group Domain Specific Review Board and the SingHealth Centralised Institutional Review Board. Ethics approval for this study was processed and approved by the Nanyang Technological University Institutional Review Board (NTU IRB; approval number IRB-2021-881).

Procedure and measures

Parents and children were provided with informed consent and assent, respectively, before responding independently to a self-administered questionnaire hosted on the Qualtrics platform. This questionnaire collected parent and child reports on demographic information of the parent-child dyad, parenting by lying, and lying to parents. Within sections, items were counterbalanced and randomized. Within this sample, 43 dyads had missing responses for the demographic survey (5 data points for child gender, 16 data points for parental education, and 43 data points for household income were missing); in addition, 16 parents and 4 children of the 564 dyads did not complete the parenting by lying and lying to parents measures. Partial data were retained, and pairwise deletion was used to address missing or incomplete responses.

Parenting by lying

Both parents and children completed the Singapore Parental Lying Scale to measure parental lies developed by Setoh et al. (2022). This 20-item measure examines common parental lies within Singapore's cultural context and was appropriate for our current sample. Based on the prompt (i.e., "I [my parents] have said something similar to my child [me]."), parents and children reported on instrumental lies (16 items; e.g., "Finish all your food, or you'll grow up to be short") and white lies (4 items; e.g., "Good job!" (even though my child [you] didn't actually do a good job)). Items were scored on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*) to indicate parents' use of and children's exposure to each type of lie. Subscale scores for instrumental lies and white lies were obtained from the mean of the respective items, with higher scores reflecting greater reports of parental lies. There was good internal consistency for exposure to instrumental lies (α s = .86 and .88 for child and parent reports, respectively) and white parental lies (α s = .69 and .76 for child and parent reports). The overall scale for aggregate parental lies also had good internal consistency (α s = .88 and .89 for child and parent reports).

Lying to parents

Children's lying to parents was measured using the Lying to Parents Questionnaire (Engels et al., 2006), reported by both parents and children. This instrument has been used with both parent and child populations, demonstrating adequate psychometric properties (Engels et al., 2006; Santos et al., 2017). The questionnaire consisted of 12 items assessing lying to parents on three aspects of lying: explicit lies about the child's activities (8 items; e.g., "lies [lie] to you [your parent] about the things he/she is [you are] engaged in"), exaggerations (2 items; e.g., "exaggerates [exaggerate] the things he/she [you] experience"), and white lies (2 items; e.g., "tells [tell] a white lie"). Items were scored on a 5-point Likert scale from 1 (*never*) to 5 (*very often*) to indicate how frequently children lied to their parents. Following prior research (Engels et al., 2006; Santos et al., 2017), we used a total composite score in the main analyses. The mean score for lying to parents was obtained from the 12 items (α s = .87 and .92 for child and parent reports, respectively), with higher scores reflecting greater lying to parents.

Belief in parental lies

Children's belief in parental lies was measured using the Singapore Parental Lying Scale (Setoh et al., 2022), reported by children only. Children responded to a second stem question, "How true did you think the statement was when you heard your parents say it?" when children responded affirmatively (i.e., scores of 3–5) to being exposed to parental lies from the first stem question. Items were scored on a 5-point Likert scale from 1 (*very untrue*) to 5 (*very true*). Subscale scores for belief in instrumental lies and white lies were obtained from the average of the respective items weighted by the number of lies they were exposed to, with higher scores reflecting children's greater reported belief in parental lies on the respective subscales. There was good internal consistency for belief in instrumental (α = .95) and white lies (α = .90) as well as for the aggregate belief in parental lies (α = .96).

Negative parenting practices

A subset of parent participants ($n = 311$) completed the Parenting Styles and Dimensions Questionnaire (Robinson et al., 2001) at Year 10.5. This questionnaire measures different types of parenting practices reported by parents. Negative parenting practices were measured using three subscales of physical coercion (4 items; e.g., "I use physical punishment as a way of disciplining our child"), verbal hostility (4 items; e.g., "I yell or shout when our child misbehaves"), and non-reasoning/punitive (4 items; e.g., "[I punish] by taking privileges away from our child with little if any explanation"). The items were scored on a 5-point Likert scale from 1 (*never*) to 5 (*always*). The mean score of these 12 items was taken (α = .83), with higher scores reflecting greater use of negative parenting practices. For the subset of participants who completed this measure, negative parenting practices were also included in the hierarchical linear regression analyses as a covariate.

Results

Descriptive statistics and bivariate correlations are reported in Table 1 for demographic factors (child gender, household income, and parental education), exposure to two measures of parental lies, belief in two measures of parental lies, and lying to parents for both parent and child reports. Pearson correlations showed that parent education was significantly related to most key variables of the study ($r_s = -.18$ to $.11$, $p_s < .05$) except child-reported exposure to instrumental and white lies and belief in white lies. As such, parent education was included as a covariate in subsequent analyses. Child gender was also included as a covariate because it was significantly related to our moderator variable of belief for white lies ($r = .09$, $p = .045$). Across our parental lie measures, exposure to instrumental and white lies was significantly correlated with lying to parents for child reports ($r_s = .34$ and $.33$, respectively, $p_s < .001$) and parent reports ($r_s = .29$ and $.12$, $p_s < .01$), providing preliminary evidence for the relationship between exposure to parental lies and children’s lying to parents.

Parenting by lying, belief in parental lies, and lying to parents

We first examined how parent–child dyads reported parenting by lying in their households. Breaking this down by each category of parental lies, parent and child reports of instrumental lies ($r = .29$, $p < .001$) and white lies ($r = .10$, $p = .023$) were also significantly correlated, as seen in Table 1. The difference between these correlations was statistically significant, with the correlation for parent–child reports of instrumental lies being significantly greater than that of white lies (Fisher’s $z = 3.24$, $p < .001$). As such, we see a modest congruence across parent- and child-reported instrumental lies and a smaller congruence for white lies.

We also investigated whether parents and children were reporting similar levels of parenting by lying by conducting paired-samples t tests between parent- and child-reported instrumental lies and white lies. The results showed that the means of parent reports ($M = 2.77$, $SD = 0.69$) and child reports ($M = 2.77$, $SD = 0.80$) of instrumental lies by dyad were not significantly different, $t(544) = 0.01$, $p = .99$, $d < .001$. This suggests that parents and children of the same household were reporting

Table 1
Means, standard deviations, and Pearson correlation matrix of the study variables and demographic factors.

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Child gender ^a	–	–	–									
2. Household income ^b	3.73	1.08	–.01	–								
3. Parent education ^c	4.65	1.29	–.06	.59***	–							
4. Exposure to instrumental lies (C)	2.77	0.80	.00	–.06	–.08	–						
5. Exposure to white lies (C)	2.70	0.96	.05	.002	–.03	.65***	–					
6. Exposure to instrumental lies (P)	2.77	0.69	.02	–.11*	–.14**	.29***	.10*	–				
7. Exposure to white lies (P)	2.83	0.83	–.05	–.07	–.09*	.11**	.10*	.45***	–			
8. Belief in instrumental lies (C)	3.16	0.79	.08	–.15**	–.18***	.05	.05	.09*	.08	–		
9. Belief in white lies (C)	3.08	0.90	.09*	–.08	–.13**	–.02	.05	.08	.12*	.51***	–	
10. Lying to parents (C)	2.38	0.71	.05	–.09*	–.08	.34***	.33***	.09*	–.02	.02	–.05	–
11. Lying to parents (P)	2.36	0.63	–.01	.10*	.11**	.16***	.06	.29***	.12**	–.02	–.03	.24***

Note. Parentheses indicate child and parent reports; (C) indicates child report and (P) indicates parent report. The range of scores for key study variables (Variables 4–12) was 1 to 5. Asterisks indicate statistically significant p values.

^a Child gender was coded as 0 for female and 1 for male.

^b Household income was coded ordinally by ascending income category.

^c Parent education was coded ordinally by ascending education level attained.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

similar levels of instrumental lies, which corroborates the modest consistency shown in the Pearson correlations. However, children reported significantly less exposure to white lies ($M = 2.70$, $SD = 0.96$) than their parents ($M = 2.83$, $SD = 0.83$), $t(544) = -2.67$, $p = .008$, $d = -.11$. Together, descriptive statistics indicated that whereas instrumental lies showed modest consistency between parent and child reports, children tended to underreport exposure to white lies compared with their parents. Given that we were interested in children's perceptions of this parenting practice, children's reports of exposure to parental lies were used as the predictor variables in our subsequent regression analyses.

Next, we examined whether children's reported beliefs in parental lies differ by the types of lies. Comparing the two categories of parental lies, children reported significantly greater belief in instrumental lies ($M = 3.16$, $SD = 0.79$) than in white lies ($M = 3.08$, $SD = 0.90$), $t(463) = 2.52$, $p = .012$, $d = .12$. In addition, children generally reported believing in instrumental parental lies, with the mean score of belief in instrumental lies being significantly above the midpoint of 3 (i.e., *neither true nor untrue*), $t(546) = 4.70$, $p < .001$, $d = .20$. However, the mean score of belief in white lies was not significantly above the midpoint of 3, $t(468) = 1.90$, $p = .058$, $d = .09$. Overall, children reported believing in instrumental lies more than in white lies, albeit the relatively small effect size.

Finally, we compared parent and child reports of our outcome measure, namely lying to parents. Parent- and child-reported lying to parents were significantly correlated ($r = .24$, $p < .001$). Comparing the means of parent- and child-reported lying to parents, the paired-samples t test also showed that there were no significant differences between child reports ($M = 2.38$, $SD = 0.71$) and parent reports ($M = 2.36$, $SD = 0.63$), $t(544) = 0.45$, $p = .65$, $d = .02$. Hence, this sample showed modest congruence between parent and child reports of lying to parents as well. In subsequent regression analyses, we used both parent- and child-reported lying to parents as our outcome measures.

Children's exposure to and belief in parental lies and children's lying to parents

Hierarchical linear regression analyses were conducted to examine the relationship between exposure to and belief in parental lies and children's lying to parents. For all models, child gender and parent education were entered at Step 1 as covariates. At Step 2, the main effects of exposure to and belief in parental lies were entered using the child-reported measures because the focus of this study was on children's perception of parenting by lying. At Step 3, the interaction terms for child-reported exposure and belief were entered. These analyses were conducted for instrumental and white lies as predictor variables, with both child and parent reports of children's lying to parents as the outcome variables. Given that we ran multiple sets of regressions (i.e., two sets of predictor variables with instrumental lies and white lies and two sets of outcomes variables with child- and parent-reported lying to parents), we used the Benjamini–Hochberg (BH) procedure to control for the false discovery rate from multiple comparisons (Benjamini & Hochberg, 1995). The relevant unstandardized coefficients are reported with both unadjusted p values and p_{BH} values, with the false discovery rate threshold set at 5%.

Given that most prior research has examined aggregate parental lies (i.e., composite scores of instrumental and white lies), we also conducted this set of analyses for the interested readers (see Table S1 in the online supplementary material). Although our outcome, the lying to parents measure, was conceptualized as a composite score, we also conducted exploratory analyses using its three sub-components (Tables S2 and S3). Finally, we conducted the same set of analyses using parent-reported parental lies as a predictor (Tables S4 and S5).

Instrumental lies

The first set of hierarchical linear regressions analyzed the role of exposure to and belief in instrumental lies in lying to parents (Table 2). The second model where exposure and belief were added was significant for child reports ($R^2 = .12$, $\Delta R^2 = .11$), $\Delta F(2, 526) = 33.52$, $p < .001$, and parent reports ($R^2 = .04$, $\Delta R^2 = .03$), $\Delta F(2, 526) = 7.78$, $p < .001$, of lying to parents. Children's reports of exposure to instrumental lies had a significant positive association with child-reported lying to parents ($B = 0.30$, $SE = 0.04$, $p < .001$, $p_{BH} < .001$) and parent-reported lying to parents ($B = 0.13$, $SE = 0.03$, $p < .001$, $p_{BH} < .001$); these associations survived multiple testing corrections. Children's reported belief in instrumental lies was not a significant predictor of both reports of lying to parents. The third

Table 2

Hierarchical linear regression of child-reported exposure to and belief in instrumental lies and child- and parent-reported lying to parents

Variable	Lying to parents (child report)					Lying to parents (parent report)				
	B	SE	β	R ²	ΔR^2	B	SE	β	R ²	ΔR^2
Step 1				.01					.01	
Gender	.06	.06	.04			-.01	.05	-.01		
Education	-.04	.02	-.08			.06	.02	.11**		
Step 2				.12	.11***				.04	.03**
Exposure to instrumental lies (C)	.30	.04	.34***#			.13	.03	.17***#		
Belief in instrumental lies (C)	-.01	.04	-.01			-.001	.04	-.001		
Step 3				.12	.001				.04	.002
Exposure \times Belief	-.03	.04	-.16			.04	.04	.24		

Note. Parentheses indicate child and parent reports; (C) indicates child report. Asterisks indicate significant unadjusted *p* values. The false discovery rate was controlled at 5% across relevant *p* values for all regression analyses conducted. Hashtag (#) indicates coefficients that remained significant after multiple testing correction.

** *p* < .01.

*** *p* < .001.

model with the interaction effect added was also not statistically significant for child reports ($R^2 = .12$, $\Delta R^2 = .001$), $\Delta F(1, 525) = 0.63$, $p = .43$, and parent reports ($R^2 = .04$, $\Delta R^2 = .002$), $\Delta F(1, 525) = 1.37$, $p = .24$, of lying to parents. Likewise, the interaction terms were not statistically significant for child reports ($B = -0.03$, $SE = 0.04$, $p = .43$, $p_{BH} = .43$) and parent reports ($B = 0.04$, $SE = 0.04$, $p = .24$, $p_{BH} = .28$) of lying to parents. These results indicate that children who were exposed to instrumental lies were also more likely to lie to their parents regardless of the extent of their belief in these lies.

White lies

The second set of hierarchical linear regressions analyzed the role of exposure to and belief in white lies in lying to parents (Table 3). The second model with exposure and belief added was significant for child reports of lying to parents ($R^2 = .12$, $\Delta R^2 = .12$), $\Delta F(2, 452) = 29.53$, $p < .001$, but not for parent reports ($R^2 = .02$, $\Delta R^2 = .01$), $\Delta F(2, 451) = 1.11$, $p = .33$. Children’s perceptions of exposure to white lies were significantly and positively associated with child reports of lying to parents ($B = 0.25$, $SE = 0.03$, $p < .001$, $p_{BH} < .001$), even after multiple testing correction, but not with parent-reported lying to parents ($B = 0.05$, $SE = 0.03$, $p = .15$, $p_{BH} = .19$). Children’s reported belief in white lies was not a statistically significant predictor of both reports of lying to parents. The third model with the interaction effect was significant for child reports ($R^2 = .12$, $\Delta R^2 = .01$), $\Delta F(1, 451) = 5.39$, $p = .021$, and for parent reports

Table 3

Hierarchical linear regression of child-reported exposure to and belief in white lies and child- and parent-reported lying to parents.

Variable	Lying to parents (child report)					Lying to parents (parent report)				
	B	SE	β	R ²	ΔR^2	B	SE	β	R ²	ΔR^2
Step 1				.004					.01	
Gender	.06	.07	.04			-.01	.06	-.01		
Education	-.04	.03	-.08			.06	.02	.11*		
Step 2				.12	.12***				.02	.01
Exposure to white lies (C)	.25	.03	.33***#			.05	.03	.07		
Belief in white lies (C)	-.06	.04	-.08			-.01	.03	-.02		
Step 3				.12	.01*				.06	.04***
Exposure \times Belief	-.09	.04	-.46*#			.14	.03	.88***#		

Note. Parentheses indicate child and parent reports; (C) indicates child report. Asterisks indicate significant unadjusted *p* values. The false discovery rate was controlled at 5% across relevant *p* values for all regression analyses conducted. Hashtag (#) indicates coefficients that remained significant after multiple testing correction.

* *p* < .05.

*** *p* < .001.

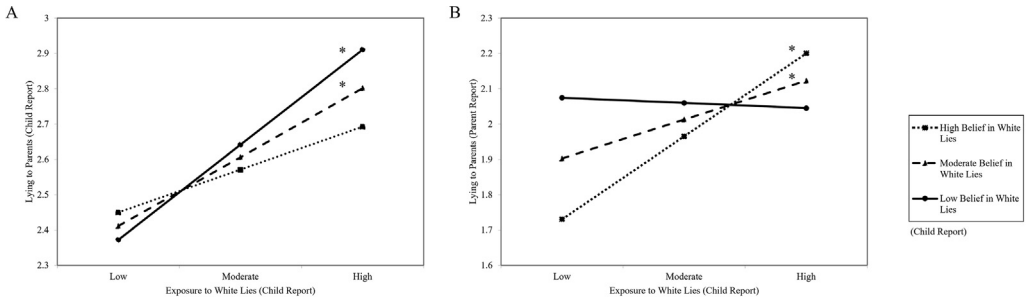


Fig. 1. Simple slopes of belief in white lies on the association between exposure to white lies and lying to parents. (A) Simple slopes of the interaction between exposure and belief in white lies and child-reported lying to parents. (B) Simple slopes of the interaction between exposure and belief in white lies and parent-reported lying to parents. Parentheses indicate child or parent reports. High slope indicates 1 standard deviation above the mean, moderate slope indicates mean level, and low slope indicates 1 standard deviation below the mean. Asterisks indicate statistically significant slopes ($p < .001$).

($R^2 = .06$, $\Delta R^2 = .04$), $\Delta F(1, 450) = 17.85$, $p < .001$, of lying to parents. The directions of these interactions were different across the informants of children’s lying behavior, that is, child reports ($B = -0.09$, $SE = 0.04$, $p = .021$, $p_{BH} = .033$) and parent reports ($B = 0.14$, $SE = 0.03$, $p < .001$, $p_{BH} < .001$).

To decompose these interaction effects, we performed simple slope analyses at high slope (1 standard deviation above the mean), moderate slope (mean level), and low slope (1 standard deviation below the mean) of belief in white lies, which are displayed in Fig. 1. When child-reported lying to parents was used as an outcome, the positive association between exposure to white lies and lying to parents was significant when children held low belief ($B = 0.28$, $SE = 0.06$), $t(453) = 4.75$, $p < .001$, and moderate belief ($B = 0.20$, $SE = 0.07$), $t(453) = 3.04$, $p = .002$, in those lies. However, this association was not significant when children reported high belief ($B = 0.12$, $SE = 0.09$), $t(453) = 1.45$, $p = .14$ (see Fig. 1A). On the contrary, when parent-reported lying to parents was used as an outcome, the association between exposure to white lies and lying to parents was significant when belief was high ($B = 0.24$, $SE = 0.06$), $t(452) = 4.36$, $p < .001$, and moderate ($B = 0.11$, $SE = 0.03$), $t(452) = 3.34$, $p < .001$. The low-belief slope was not significant ($B = -0.02$, $SE = 0.03$), $t(452) = -0.46$, $p = .65$ (see Fig. 1B). Hence, our results showed that exposure to white lies was associated with more lying to parents reported by children only when they also reported low or moderate belief in these lies. However, the reverse was true when child lying was reported by parents, such that exposure to white lies predicted more lying to parents when children had high or moderate belief in these lies.

Sensitivity analysis: Controlling for negative parenting practices

For a subset of participants ($n = 311$) who completed a measure of negative parenting practices, hierarchical linear regression analyses were also conducted with negative parenting practices as a covariate in the first step. We found similar results to our main analyses, and the results of these regression analyses are reported in the [supplementary material](#). That is, exposure to instrumental lies was significantly associated with more lying to parents, whereas belief in instrumental lies and the interaction between exposure to and belief in instrumental lies were not statistically significant (see Table S6 in [supplementary material](#)). Exposure to white lies was significantly associated with more lying to parents, as well as the interaction between exposure to and belief in white lies and lying to parents, in the same directions as the main analyses (see Table S7 and Fig. S1 in the [supplementary material](#)). Overall, these sensitivity analyses indicate that the associations seen in the current study hold even when controlling for negative parenting practices, suggesting that parenting by lying is significantly related to children’s lying behavior over and above other negative parenting practices.

Discussion

Through socialization and their own cognitive and social development, children develop their understandings of lying behaviors as they age. Among several developmental mechanisms for lying behaviors, such as direct teaching, modeling, and social transmission (e.g., Heyman et al., 2009; Mann et al., 2014), the current research focused on parenting by lying. Given that parents are the primary agents of socialization throughout their children's development, parents' lies may implicitly socialize their children how to lie or when it is appropriate to lie by modeling. Our current research examined how instrumental and white lies told by parents may be perceived by children and how that predicts their subsequent lying behavior to parents. Using parent-child reports of parental lies, we first explored the consistency in parent and child reports of parenting by lying and children's lying behavior given the lack of studies that tap into children's reported parenting by lying during childhood. We further examined the differences between exposure to and belief in instrumental and white lies. Then, we investigated the relationship between exposure to and belief in instrumental and white lies and children's lying to parents. Overall, we found that parenting by lying was associated with lying to parents; instrumental lies were associated with more lying to parents, and the relationship between exposure to white lies and lying to parents was moderated by children's belief in these lies.

Parent- and child-reported parenting by lying and lying to parents

We found that parent and child reports of instrumental lies were moderately correlated, whereas parent and child reports of white lies had a small correlation. Referring to a meta-analysis on parent and child report congruence about parenting behaviors, effect sizes ranging from $r = .23$ to $r = .29$ have been referred to as modest correspondence (Korelitz & Garber, 2016). As such, our findings indicate that children may be able to perceive parental lies during childhood by reporting their exposure to parents' instrumental lies at an overall modest consistency with parent reports. This finding corroborates evidence in the literature on children's ability to report lies given that children aged 5 and 6 years were able to recall statements they heard and identify them as lies and that this ability improves with age for older children (Bussey, 1992; Lee et al., 2002). It is possible that the correlation between parent and child reports of white lies was lower because the intentions and consequences of these lies are less clear to the receiver. In contrast, for instrumental lies, the sequence of events surrounding the lies (e.g., children misbehaving, parental lie, child compliance) is relatively clearer, making it easier for both parties to perceive. Alternatively, this difference might be due to the lower representation of white lies in the measure. The findings collectively suggest that child reports of exposure to parenting by lying could be used to understand children's perceptions of this parenting practice as well as the value in distinguishing parental lies by types in this line of investigation.

We also found that children were more likely to believe in instrumental lies than in white lies they heard. We propose that this may be due to the nature of each type of lie. Instrumental lies are more parent-focused and oriented toward parent intentions; these lies are often told about what parents would do or to elicit a certain behavior by using consequences that children cannot be certain of. For example, a child who is told "If you keep misbehaving, I will call the police!" would not know whether the parent truly intends to call the police and may believe such a statement. As such, children may be more likely to believe instrumental lies because they do not have a point of reference that would allow them to detect these lies. Conversely, white lies are more child-focused; they are intended to instill positive emotions for children and often refer to the children's own emotions or actions. For example, if children know that they performed badly on the piano but are told that they did well by their parents, they might not believe that statement. Therefore, children may be more likely to believe white lies to a lesser degree because they are able to refer to how they actually feel about a situation and compare that with what their parents are telling them.

In addition, our results showed a modest congruence between parent and child reports of children's lying to parents, with a moderate correlation and no significant differences between parent and child reports. Parents' reports of their own lies may bias their reports of their children's lies. Prior research similarly indicates that parents are poor at identifying children's lie-telling due to the differ-

ences in perception of their self-reported behavior (Dykstra et al., 2020; Evans et al., 2016). As such, we used both child- and parent-reported lying to parents in order to obtain a more complete examination of the relationship between parental lies and children's lying to parents.

Role of belief in parental lies in the links between parental lies and lying to parents

We next investigated how children's reported exposure to parental lies might be associated with their lying to parents, as well as the moderation effect of children's belief in this association. We found that belief in parental lies was a unique moderator for white lies but not instrumental lies. Importantly, these findings remained consistent even when controlling for other negative parenting practices, indicating that parenting by lying had a significant relationship with lying to parents over that of negative parenting practices. This highlights a deeper need to understand this parenting practice and its relation to children's outcomes given that parenting by lying may have unique implications for children's honesty.

Instrumental lies

Results showed that the more children were told instrumental lies, the more likely they were to lie to their parents regardless of whether they believed in these lies. This finding suggests that instrumental lies may have implications for children's honesty regardless of children's beliefs and aligns with previous retrospective associations where young adults who recalled more exposure to instrumental parental lies were also more likely to tell lies to their parents (Dodd & Malm, 2023; Santos et al., 2017; Setoh et al., 2020). Therefore, parents' instrumental lies may socialize children's lying behavior through the modeling of lies that children imitate and, going further, may reciprocate within the parent-child relationship, as seen in children's lying to parents in our study. Considering the effects of instrumental lies on child compliance, exposure to these lies may communicate their effectiveness to children regardless of their beliefs (Allen & Kara, 2023), thereby socializing them to use more lies. Alternatively, the coercive nature of many instrumental lies may evoke negative feelings in children (Allen & Kara, 2023), potentially straining parent-child relationships and contributing to a higher likelihood of children lying to their parents. Yet, belief in instrumental lies may possibly play a role in socialization of children's lying in other ways that were not identified in this research given that they may change over time. For example, instrumental lies might not be detected when told, but children may realize that these false statements are untrue after some time when they do not come true. Such retroactive discovery of these lies may engender feelings of distrust or insecurity that also lead children to be more secretive or more likely to tell lies (Dodd & Malm, 2023; Engels et al., 2006). In this way, parents' instrumental lies may implicitly model lying behavior that children are able to construe to their concepts of lying.

White lies

On the other hand, the more children were told white lies, the more likely they were to report lying to their parents only when they had detected that they were being lied to (i.e., had moderate to low belief in white lies). White lies are prosocial lies for the benefit of others that may require more developed social skills that underlie important developmental domains for children's deeper understanding (Talwar et al., 2007). We suggest that our results demonstrate that simply hearing white lies is not sufficient for children to be socialized to tell more lies to their parents. An important condition is their lack of belief in parental white lies, which enables children to discern when they have been deceived and to comprehend the underlying intentions behind these lies. This is a particularly novel finding given that white lies are often believed to be prosocial and have been purported to increase trust that may be related to the recipient's own truthful behaviors for adults (Levine & Lupoli, 2022; Levine & Schweitzer, 2015). Our results instead suggest that when exposure to white lies was coupled with an awareness that they have been lied to, children may learn the appropriateness of lying behaviors, thereby using more lies toward their parents. This finding should be interpreted with caution, however, because our interaction finding using parent-reported child lying showed the opposite pattern. That is, the more children were exposed to white lies, their parents reported greater levels of their children's lying behaviors only when children had low or moderate belief in these lies. One way to

interpret our findings is that beliefs in parental lies may serve as an indicator of children's receptiveness to parental socialization or their preexisting trust in the parent-child relationships. In this context, children with lower beliefs in their parents' white lies may be less accepting of their parents' messages aimed at instilling positive emotions or may hold more skeptical views of these messages. These less trusting relationships between parents and children reflected in children's lower beliefs could have affected parents' perception of their children's dishonesty. Another possibility is that these differential findings indicate a limitation of our methodology in using child and parent reports due to either shared method variance in the child report or parents' less accurate reporting of children's lies in the parent report.

In this study, our primary focus was on the findings based on child-reported lying behaviors given prior research indicating that parents are often ineffective at reporting their children's lies (e.g., Dykstra et al., 2020). Nonetheless, these unexpectedly divergent findings suggest the possibility that beliefs in parental lies may reflect broader aspects of the parent-child relationship beyond mere lie detection. This study constitutes the first step in understanding children's belief in parental lies, being the first to examine belief in parental lies, and we propose further directions to build on these findings in our following section.

Limitations and future directions

Some limitations of the current research are related to the study design. First, due to its correlational design, we are not able to infer causal relationships for the effects of parenting by lying. Furthermore, our cross-sectional design restricted our ability to investigate crucial developmental questions such as the prolonged or cumulative effects of parental lies or shifts in the relationship between parental lies and child lying across developmental stages. A temporal framework would provide a stronger basis to examine the directionality of this socialization; thus, future studies can use longitudinal studies to map out the developmental trajectory of how children are socialized about lying. In addition, our measure did not include a specific timeframe for the reports of parental lies, making these reports short-term retrospective. Given that existing literature has not yet identified the peak age when parents are more likely to use parenting by lying, we asked parents and children to report on parental lies across childhood. However, this retrospective assessment may have introduced variability in terms of the age, timing, and frequency of lies reported in our data, depending on the specific lies inquired about (e.g., the "I will call the police" item may be more used and believable at a younger age). It would be fruitful for future research to identify when certain lies are more commonly used by parents across different age groups and to specify a timeframe for more accurate reporting of current parenting by lying.

Second, there may be key aspects of parental lies that this study did not explore other than children's belief in parental lies such as children's evaluation of lies. Existing literature indicates that children are more accepting of white lies, rating them more positively than antisocial lies (Bussey, 1999) or blunt truths in public situations (Ma et al., 2011). Similarly, parents are also more likely to be engaged in socialization effects to curtail antisocial or self-serving lies such as instrumental lies while also endorsing prosocial or other-serving lies such as white lies (Talwar et al., 2019, 2022). Hence, it is plausible that white lies and instrumental lies are explicitly taught or evaluated differently by children. Whereas this study focused on children's belief in parental lies, future studies can build on this to examine other aspects of children's interpretation of parental lies, exploring potential conditions or mechanisms that differentiate instrumental and white lies. Regarding beliefs in lying, future studies should aim to clarify what this construct represents and what factors it relates to, particularly in light of our contrasting findings in the interactions between white lies and beliefs predicting parent- and child-reported lying behaviors of children. As mentioned earlier, the quality of the parent-child relationship, including children's general trust in parents, may shape children's belief in parental lies. In addition, certain sociocognitive skills may be relevant to children's belief in parental lies or their ability to distinguish lies from truth such as theory of mind (Vendetti et al., 2019). Given that scant research has investigated children's belief in different types of parental lies, it will also be worthwhile to explore in greater depth why there are differences in children's belief in parental lies and the individual or dyadic factors that may play a role in determining children's belief in parental lies.

Third, it is important to acknowledge certain limitations associated with the measures used in this study. The Singapore Parental Lying Scale developed for Singaporean populations (Setoh et al., 2022) has not yet been validated and had a varying structure across its items. For example, whereas some items clearly indicate that the statement is untrue (e.g., “If you don’t behave, the police will catch you” when the police are unlikely to do so), other items do not (e.g., “Finish all your food or you’ll grow up to be short”). This structural variation may have implications for the belief ratings given that items with parentheses could have highlighted that a statement was dishonest. Moreover, our measure for lying to parents had limitations in examining specific types of children’s lies because it included a relatively small number of items for each type (e.g., two items each for white lies and exaggerations) and was constructed as a composite measure of lying to parents. Although we explored whether our results held for different types of children’s lies (i.e., explicit lies, exaggerations, and white lies; see [supplementary material](#)), the limitations of the measure prevented us from drawing a conclusion regarding children’s lying behavior by its specific type. Given the important distinctions in lying behavior that can affect its implications and evaluation (e.g., commission vs. omission, antisocial vs. prosocial; Mann et al., 2014), it is crucial for future research to delve into the associations between parents’ and children’s lies by specific type. Moreover, due to the nature of self-report measures in the current study, potential response biases should be considered. For example, when assessing belief in parental lies, children might have indicated that they did not believe a lie in order to avoid appearing gullible. Future research could control for this social desirability or use additional concurrent assessments of belief for a more robust measure of belief.

Conclusion

Our research provides incremental value to the literature of parenting by lying by examining children’s experiences of parental lies during childhood and their reports of exposure and belief. We found that children’s reports on parents’ instrumental lies were consistent with their parents’ reports. This is also the first study to examine the unique contributions of different types of parental lies in conjunction with children’s belief in parental lies to understand their implications for children’s lying. Interestingly, their belief moderated the effect of white lies on children’s lying to parents, but not the effect of instrumental lies, suggesting different conditions by which two types of parental lies socialize children about lying. Overall, this article extends the current scope of parenting by lying research by considering children’s viewpoints of parental lies during childhood and by preliminarily establishing the association of two types of parental lies with children’s own lie-telling. Our findings underscore the value of differentiating parental lies by type in investigating its role in children’s socialization of lying as well as the importance of considering children’s perceptions and interpretation of parental lies.

Acknowledgements

We would like to thank the Early Cognition Lab at Nanyang Technological University for their valuable and helpful comments through the process of this manuscript. We would also like to thank the members of the GUSTO study team: Airu Chia, Andrea Cremaschi, Anna Magdalena Fogel, Anne Eng Neo Goh, Anne Rifkin-Graboi, Anqi Qiu, Arijit Biswas, Bee Wah Lee, Birit Froukje Philipp Broekman, Candida Vaz, Chai Kiat Chng, Chan Shi Yu, Choon Looi Bong, Daniel Yam Thiam Goh, Dawn Xin Ping Koh, Dennis Wang, Desiree Y. Phua, E Shyong Tai, Elaine Kwang Hsia Tham, Elaine Phaik Ling Quah, Elizabeth Huiwen Tham, Evelyn Chung Ning Law, Evelyn Keet Wai Lau, Evelyn Xiu Ling Loo, Fabian Kok Peng Yap, Falk Müller-Riemenschneider, Franzolini Beatrice, George Seow Heong Yeo, Gerard Chung Siew Keong, Hannah Ee Juen Yong, Helen Yu Chen, Hong Pan, Huang Jian, Huang Pei, Hugo P S van Bever, Hui Min Tan, Iliana Magiati, Inez Bik Yun Wong, Ives Lim Yubin, Ivy Yee-Man Lau, Jacqueline Chin Siew Roong, Jadegoud Yaligar, Jerry Kok Yen Chan, Jia Xu, Johan Gunnar Eriksson, Jonathan Tze Liang Choo, Jonathan Y. Bernard, Jonathan Yin hao Huang, Joshua J. Gooley, Jun Shi Lai, Karen Mei Ling Tan, Keith M. Godfrey, Keri McCrickerd, Kok Hian Tan, Kothandaraman Narasimhan, Krishnamoorthy Naiduva, Kuan Jin Lee, Li Chen, Lieng Hsi Ling, Lin Lin Su, Ling-Wei Chen, Lourdes Mary Daniel, Lynette Pei-Chi Shek, Maria De Iorio, Marielle V. Fortier, Mary Foong-Fong Chong, Mary Wlo-

dek, Mei Chien Chua, Melvin Khee-Shing Leow, Michael J. Meaney, Michelle Zhi Ling Kee, Min Gong, Mya Thway Tint, Navin Michael, Neerja Karnani, Ngee Lek, Noor Hidayatul Aini Bte Suaini, Oon Hoe Teoh, Peter David Gluckman, Priti Mishra, Queenie Ling Jun Li, Sambasivam Sendhil Velan, Seang Mei Saw, See Ling Loy, Seng Bin Ang, Shang Chee Chong, Shiao-Yng Chan, Shirong Cai, Shu-E Soh, Stephen Chin-Ying Hsu, Suresh Anand Sadananthan, Swee Chye Quek, Tan Ai Peng, Varsha Gupta, Victor Samuel Rajadurai, Wee Meng Han, Wei Wei Pang, Yap Seng Chong, Yin Bun Cheung, Yiong Huak Chan, Yung Seng Lee, Zhang Han.

Funding

This work was supported by grants from the Singapore Ministry of Education Academic Research Fund Tier 1 (RG42/20; RG39/22) and National University of Singapore Yong Loo Lin School of Medicine (NUHSRO/2021/093/NUSMed/13/LOA) awarded to Peipei Setoh. The GUSTO study is supported by the National Research Foundation (NRF) under the Open Fund-Large Collaborative Grant (OF-LCG; MOH-000504) administered by the Singapore Ministry of Health's National Medical Research Council (NMRC) and the Agency for Science, Technology and Research (A*STAR). In RIE2025, GUSTO is supported by funding from the NRF's Human Health and Potential (HHP) Domain, under the Human Potential Programme.

CRedit authorship contribution statement

Petrina Hui Xian Low: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Yena Kyeong:** Conceptualization, Supervision, Writing – review & editing. **Peipei Setoh:** Conceptualization, Investigation, Methodology, Project administration, Funding acquisition, Supervision, Writing - original draft, Writing - Review & Editing.

Data availability

The authors do not have permission to share data.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jecp.2023.105837>.

References

- Allen, J. W. P., & Kara, D. (2023). Domain-general or specific: How is children's understanding of deception socialized? *Social Development*. Advance online publication. <https://doi.org/10.1111/sode.12712>.
- Bandura, A. (1977). *Social learning theory*. Prentice Hall.
- Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society B: Methodological*, 57(1), 289–300. <https://doi.org/10.1111/j.2517-6161.1995.tb02031.x>.
- Bornstein, M. H., Putnick, D. L., & Suwalaky, J. T. D. (2018). Parenting cognitions → parenting practices → child adjustment? The standard model. *Development and Psychopathology*, 30(2), 399–416. <https://doi.org/10.1017/S0954579417000931>.
- Bussey, K. (1992). Lying and truthfulness: Children's definitions, standards, and evaluative reactions. *Child Development*, 63(1), 129–137. <https://doi.org/10.1111/j.1467-8624.1992.tb03601.x>.
- Bussey, K. (1999). Children's categorization and evaluation of different types of lies and truths. *Child Development*, 70(6), 1338–1347. <https://doi.org/10.1111/1467-8624.00098>.
- Cheung, H., Siu, T.-S.-C., & Chen, L. (2015). The roles of liar intention, lie content, and theory of mind in children's evaluation of lies. *Journal of Experimental Child Psychology*, 132, 1–13. <https://doi.org/10.1016/j.jecp.2014.12.002>.
- Darling, N., Cumsille, P., Caldwell, L. L., & Dowdy, B. (2006). Predictors of adolescents' disclosure to parents and perceived parental knowledge: Between- and within-person differences. *Journal of Youth & Adolescence*, 35(4), 667–678. <https://doi.org/10.1007/s10964-006-9058-1>.
- Davidov, M. (2021). Cultural moderation of the effects of parenting: Answered and unanswered questions. *Child Development Perspectives*, 15(3), 189–195. <https://doi.org/10.1111/cdep.12422>.
- Dodd, B., & Malm, E. K. (2023). Effects of parenting by lying in childhood on adult lying, internalizing behaviors, and relationship quality. *Child Psychiatry & Human Development*, 54(1), 9–16. <https://doi.org/10.1007/s10578-021-01220-8>.

- Dykstra, V. W., Willoughby, T., & Evans, A. D. (2020). Perceptions of dishonesty: Understanding parents' reports of and influence on children and adolescents' lie-telling. *Journal of Youth & Adolescence*, 49(1), 49–59. <https://doi.org/10.1007/s10964-019-01153-5>.
- Engels, R. C. M. E., Finkenauer, C., & van Kooten, D. C. (2006). Lying behavior, family functioning and adjustment in early adolescence. *Journal of Youth & Adolescence*, 35(6), 949–958. <https://doi.org/10.1007/s10964-006-9082-1>.
- Evans, A. D., Bender, J., & Lee, K. (2016). Can parents detect 8- to 16-year-olds' lies? Parental biases, confidence, and accuracy. *Journal of Experimental Child Psychology*, 147, 152–158. <https://doi.org/10.1016/j.jecp.2016.02.011>.
- Gingo, M., Roded, A. D., & Turiel, E. (2020). What they don't know won't hurt them: Parents' judgments about lying to their adolescents. *Journal of Research on Adolescence*, 30(1), 95–108. <https://doi.org/10.1111/jora.12503>.
- Grusec, J. E. (2002). Parental socialization and children's acquisition of values. In M. H. Bornstein (Ed.), *Handbook of parenting* (pp. 143–167). Lawrence Erlbaum.
- Grusec, J. E., & Davidov, M. (2010). Integrating different perspectives on socialization theory and research: A domain-specific approach. *Child Development*, 81(3), 687–709. <https://doi.org/10.1111/j.1467-8624.2010.01426.x>.
- Hays, C., & Carver, L. J. J. (2014). Follow the liar: The effects of adult lies on children's honesty. *Developmental Science*, 17(6), 977–983. <https://doi.org/10.1111/desc.12171>.
- Heyman, G. D., Hsu, A. S., Fu, G., & Lee, K. (2013). Instrumental lying by parents in the US and China. *International Journal of Psychology*, 48(6), 1176–1184. <https://doi.org/10.1080/00207594.2012.746463>.
- Heyman, G. D., Luu, D. H., & Lee, K. (2009). Parenting by lying. *Journal of Moral Education*, 38(3), 353–369. <https://doi.org/10.1080/03057240903101630>.
- Heyman, G. D., Zhao, L., Compton, B. J., & Lee, K. (2019). Dishonesty in young children. In A. Buccelli & N. Montinari (Eds.), *Dishonesty in Behavioral Economics* (pp. 17–29). Elsevier. <https://doi.org/10.1016/B978-0-12-815857-9.00002-9>.
- Jackson, R., Ekerim-Akbulut, M., Zanette, S., Selçuk, B., & Lee, K. (2021). Parenting by lying in Turkey: Associations with negative psychosocial outcomes and psychopathy in adulthood. *Humanities and Social Sciences Communications*, 8(1), Article 202. <https://doi.org/10.1057/s41599-021-00877-9>.
- Korelitz, K. E., & Garber, J. (2016). Congruence of parents' and children's perceptions of parenting: A meta-analysis. *Journal of Youth & Adolescence*, 45(10), 1973–1995. <https://doi.org/10.1007/s10964-016-0524-0>.
- Law, E. C., Aishworiya, R., Cai, S., Bouvette-Turcot, A. A., Broekman, B. F. P., Chen, H., Daniel, L. M., Gluckman, P. D., Shek, L. P. C., Tay, S. K. H., Chong, Y. S., Koh, G. C. H., & Meaney, M. J. (2021). Income disparity in school readiness and the mediating role of perinatal maternal mental health: A longitudinal birth cohort study. *Epidemiology and Psychiatric Sciences*, 30, Article e6. <https://doi.org/10.1017/S204579602000102X>.
- Lee, K., Cameron, C. A., Doucette, J., & Talwar, V. (2002). Phantoms and fabrications: Young children's detection of implausible lies. *Child Development*, 73(6), 1688–1702. <https://doi.org/10.1111/1467-8624.t01-1-00499>.
- Levine, E. E., & Lupoli, M. J. (2022). Prosocial lies: Causes and consequences. *Current Opinion in Psychology*, 43, 335–340. <https://doi.org/10.1016/j.copsyc.2021.08.006>.
- Levine, E. E., & Schweitzer, M. E. (2015). Prosocial lies: When deception breeds trust. *Organizational Behavior and Human Decision Processes*, 126, 88–106. <https://doi.org/10.1016/j.obhdp.2014.10.007>.
- Liu, M., & Wei, H. (2020). The dark side of white lies: Parenting by lying in childhood and adolescent anxiety, the mediation of parent-child attachment and gender difference. *Children and Youth Services Review*, 119, Article 105635. <https://doi.org/10.1016/j.childyouth.2020.105635>.
- Ma, F., Heyman, G. D., Jing, C., Fu, Y., Compton, B. J., Xu, F., & Lee, K. (2018). Promoting honesty in young children through observational learning. *Journal of Experimental Child Psychology*, 167, 234–245. <https://doi.org/10.1016/j.jecp.2017.11.003>.
- Ma, F., Xu, F., Heyman, G. D., & Lee, K. (2011). Chinese children's evaluations of white lies: Weighing the consequences for recipients. *Journal of Experimental Child Psychology*, 108(2), 308–321. <https://doi.org/10.1016/j.jecp.2010.08.015>.
- Mann, H., Garcia-Rada, X., Houser, D., & Ariely, D. (2014). Everybody else is doing it: Exploring social transmission of lying behavior. *PLoS One*, 9(10), Article e109591. <https://doi.org/10.1371/journal.pone.0109591>.
- Robinson, C. C., Mandleco, B., Olsen, S. F., & Hart, C. H. (2001). The Parenting Styles and Dimensions Questionnaire (PSDQ). In J. Touliatos, B. F. Perlmutter, & G. W. Holden (Eds.), *Handbook of family measurement techniques* (3rd ed., pp. 319–321). Sage.
- Santos, R. M., Zanette, S., Kwok, S. M., Heyman, G. D., & Lee, K. (2017). Exposure to parenting by lying in childhood: Associations with negative outcomes in adulthood. *Frontiers in Psychology*, 8, Article 1240. <https://doi.org/10.3389/fpsyg.2017.01240>.
- Setoh, P., Low, P. H. X., Heyman, G. D., & Lee, K. (2023). Parenting by lying. *Current Directions in Psychological Science*. Advance online publication. <https://doi.org/10.1177/09637214231206095>.
- Setoh, P., Santos, R., Zhao, S., Zhang, L., Heyman, G. D., & Lee, K. (2022). Parents with greater religiosity lie less to their children. *Psychology of Religion and Spirituality*, 14(1), 108–118. <https://doi.org/10.1037/rel0000377>.
- Setoh, P., Zhao, S., Santos, R., Heyman, G. D., & Lee, K. (2020). Parenting by lying in childhood is associated with negative developmental outcomes in adulthood. *Journal of Experimental Child Psychology*, 189, Article 104680. <https://doi.org/10.1016/j.jecp.2019.104680>.
- Shaw, D. S., Gross, H. E., & Moilanen, K. L. (2009). Developmental transactions between boys' conduct problems and mothers' depressive symptoms. In A. Sameroff (Ed.), *The transactional model of development: How children and contexts shape each other* (pp. 77–96). American Psychological Association. <https://doi.org/10.1037/11877-005>.
- Singapore Department of Statistics. (2011). *Singapore Census of Population 2010—Statistical Release 2: Households and housing*.
- Soh, S.-E., Tint, M. T., Gluckman, P. D., Godfrey, K. M., Rifkin-Graboi, A., Chan, Y. H., Stunkel, W., Holbrook, J. D., Kwek, K., Chong, Y.-S., Saw, S. M., Sheppard, A., Chinnadurai, A., Ferguson-Smith, A., Goh, A. E. N., Biswas, A., Chia, A., Leutscher-Broekman, B., Shuter, B., & Venkatesh, S. K. (2014). Cohort profile: Growing Up in Singapore Towards Healthy Outcomes (GUSTO) birth cohort study. *International Journal of Epidemiology*, 43(5), 1401–1409. <https://doi.org/10.1093/ije/dyt125>.
- Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development*, 71(4), 1072–1085. <https://doi.org/10.1111/1467-8624.00210>.
- Sudo, M., Won, Y. Q., Chau, W. W., Meaney, M. J., Kee, M. Z., Chen, H., Eriksson, J. G., Yap, F., Rifkin-Graboi, A., Tiemeier, H., ... Setoh, P. (2023). Physical discipline as a normative childhood experience in Singapore. *Child and Adolescent Psychiatry and Mental Health*, 17(1), Article 81. <https://doi.org/10.1186/s13034-023-00632-9>.

- Talwar, V., Lavoie, J., & Crossman, A. M. (2019). Carving Pinocchio: Longitudinal examination of children's lying for different goals. *Journal of Experimental Child Psychology*, 181, 34–55. <https://doi.org/10.1016/j.jecp.2018.12.003>.
- Talwar, V., Lavoie, J., & Crossman, A. M. (2022). Socialization of Lying Scale: Development and validation of a parent measure of socialization of truth and lie-telling behavior. *Applied Developmental Science*, 26(3), 553–566. <https://doi.org/10.1080/10888691.2021.1927732>.
- Talwar, V., Murphy, S. M., & Lee, K. (2007). White lie-telling in children for politeness purposes. *International Journal of Behavioral Development*, 31(1), 1–11. <https://doi.org/10.1177/0165025406073530>.
- Tong, D., & Talwar, V. (2021). Understanding the development of honesty in children through the domains-of-socialization approach. *Infant and Child Development*, 30(6). <https://doi.org/10.1002/icd.2268> e2268.
- Vendetti, C., Kamawar, D., & Andrews, K. E. (2019). Theory of mind and preschoolers' understanding of misdeed and politeness lies. *Developmental Psychology*, 55(4), 823–834. <https://doi.org/10.1037/dev0000666>.