



Sometimes “we” can help: parents’ pronoun use buffers fear and anxiety transmission

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ABSTRACT

Background and objectives: Parents’ natural language when describing health-related threats reflects parents’ cognitions that may shape their transmission of anxiety and fear. Parents’ greater communal focus (i.e., higher *we*-talk) and less self-focus (i.e., lower *I*-talk) may buffer against intergenerational fear/anxiety transmission. The current study investigated whether the relation between parents’ and children’s anxiety and pandemic-related fear differed by parent *we*- and *I*-talk.

Design and Methods: Parents of 114 children (2–19 years; $M = 9.75$, $SD = 3.73$) completed online measures assessing children’s and parents’ anxiety and COVID-19-related fears, and engaged in a written reflection on their early pandemic experiences. The proportion of parents’ *we*-talk and *I*-talk during the reflection was obtained using Linguistic Inquiry Word Count software.

Results: Results of multilevel structural equation models were partially consistent with expectations: The protective effect of *we*-talk was only observed for parents with lower fear/anxiety. For parents with higher fear/anxiety, higher *I*-talk was associated with lower child fear/anxiety. At higher levels of parent *we*-talk and at lower levels of *I*-talk, there was an unexpectedly positive association between parents’ and children’s fear/anxiety.

Conclusions: The concordance between parents’ and their children’s fear/anxiety differs depending on parents’ natural language when reflecting on the pandemic.

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In the first three months after being declared a pandemic by the World Health Organization, COVID-19, the novel coronavirus-transmitted infectious disease, had infected 1,724,935 Americans and resulted in 91,430 deaths (WHO, 2020). During the early pandemic, both parents’ and children’s anxiety and distress were elevated (Cameron et al., 2020; De France et al., 2021; Kerr et al., 2021). Given these elevations occurred in the context of viral mitigating protocols that resulted in increased time spent together (Bülow et al., 2021), it is imperative to evaluate the concordance between parents’ and children’s emotional responses to the pandemic as well as between-family variability therein.

Emerging COVID-19 research demonstrates links between parents’ general and COVID-19-specific fear, anxiety, and stress (Li & Zhou, 2021; Orgilés et al., 2021; Radanović et al., 2021; Uy et al., 2022). Recent work using novel genetically-informed designs provides evidence that the intergenerational transmission of anxiety from parents to their children occurs through environmental mechanisms

rather than through shared genetic risk (Eley et al., 2015). Anxious parents are more likely to perceive threats in ambiguous social situations, to anticipate threats in their children's environment, and to hold negative expectations of their own and their child's coping (Creswell et al., 2011). In turn, anxious parents' cognitive biases may render them more likely to model anxious cognitions, fear responses, and maladaptive coping for their children and to engage in more controlling and protective parenting (Creswell et al., 2011). Work on children's responses to the 2009 H1N1 pandemic and the COVID-19 pandemic has replicated evidence that parent health-related fears are passed to their children through the transmission of threat information (Remmerswaal & Muris, 2011; Uy et al., 2022).

At the same time, the effects of the COVID-19 pandemic differed between families (Bülow et al., 2021), warranting investigation of factors that account for variability in the intergenerational transmission of anxiety and health-related fears. Cross-sectional data collected during the beginning of the pandemic suggests that parent-child relationship quality (i.e., higher levels of conflict and lower levels of positivity) strengthened the positive association between parents' and children's emotional concerns (Bate et al., 2021), whereas positive parent behaviors (e.g., maintaining stable home routines and parental emotion coaching) buffered against the deleterious effects of family COVID-19 related stress on youth internalizing symptoms (Cohodes et al., 2021). There is inconsistent evidence that having more frequent family discussions about COVID-19 is associated with fewer child mental health problems (Cohodes et al., 2021; Tang et al., 2021). Parents may shape child adjustment *for better or for worse*, as parents may either model ineffective or biased cognitive appraisals or adaptive cognitive frameworks for coping with potentially frightening information (Bandura, 1977).

Parents' natural language, including their pronoun use, offers an entrée into how parents think and in turn to how they are likely to behave (Humphreys et al., 2018), which may shape their children's own anxiety and worries about the pandemic. Parents' greater use of *we*-talk signals less self-focus and greater sense of closeness and togetherness in the "here-and-now" (Humphreys et al., 2018), which may be related to ways of describing the pandemic as well as broader parenting behavior that promotes child resilience. Indeed, parents' *we*-talk when discussing either their partner or their child has been related to better parent well-being, as well as more sensitive and warm caregiving (Foley et al., 2020; Humphreys et al., 2018). In contrast, parents' greater use of *I*-talk may signal greater self-focus (Foley et al., 2020; Humphreys et al., 2018); this cognitive style may lead to maladaptive coping, including negative perseveration (e.g., rumination), that may augment the transmission of parents' pandemic-related fears and anxiety (Foley et al., 2020). Meta-analytic work suggests *I*-talk is associated with greater internalizing problems (Edwards & Holtzman, 2017; Zimmermann et al., 2017), which has also been demonstrated with new parents (Humphreys et al., 2018).

The current study

The aim of the current study was to evaluate whether the concordance between parents' fear and anxiety and their children's fear and anxiety would differ across levels of parents' *we*-talk and *I*-talk when reflecting on the COVID-19 pandemic. In a preregistered analysis plan (https://osf.io/qzb52/?view_only=f2d1342251c6467fb088586e723f2c6b), we detailed our expectation, consistent with prior work (Li & Zhou, 2021; Orgilés et al., 2021; Radanović et al., 2021; Uy et al., 2022) that there would be positive concordance between latent constructs of parents' and children's fear and anxiety, indexed by general anxiety and pandemic-related worries that may not be captured by commonly-used anxiety measures (Sáez-Clarke et al., 2022). Further, we detailed novel hypotheses that this concordance would differ by parents' first-person pronoun use, such that (1) the positive relation between parents' and their children's fear and anxiety would be stronger at lower levels of parental *we*-talk relative to higher levels of parental *we*-talk, whereas (2) the positive relation between parents' and their children's fear and anxiety would be stronger at higher levels of parental *I*-talk relative to lower levels of parental *I*-talk. In addition, given evidence younger children may be more

sensitive to their parents' communication about the pandemic (Uy et al., 2022) whereas older children and adolescents may be more aware of the global impact of the pandemic (Masten & Motti-Stefanidi, 2020) and less susceptible to parents' stress buffering (Doom et al., 2015; Gunnar, 2017; Hostinar et al., 2015), we also explored the moderating effects of parents' pronoun use separately for younger versus older children.

Methods

Participants

The sample consists of 74 parents and 114 children who participated in a broader examination of the effects of the global COVID-19 pandemic on family functioning, *Parenting Under Pressure (PUP)*. Parents were eligible to participate in *PUP* if they were aged 18 years or older, had at least one child between 6–17 years of age, and could read and write in English. Parents could enroll multiple children in the study (up to 4), and children of all ages were invited to participate. The current study was restricted to parents who completed written reflections on their experiences of the COVID-19 pandemic and their children. Almost all parents were mothers ($N = 71$; 95.9%) and raised children in dual-parent households ($n = 66$; 89.2%). Most parents enrolled more than one child: 21 parents enrolled 1 child, 29 parents enrolled 2 children, 9 parents enrolled 3 children, and 2 parents enrolled 4 children. Though study participation was not restricted based on country of residence, most ($n = 62$; 83.8%) participants lived in the United States. Race and ethnicity were reported for 69.3% of children. Additional sample characteristics are presented in Table 1. The University of California, Los Angeles (UCLA) IRB approved all study procedures prior to recruitment and data collection.

Table 1. Sample demographics.

Child Age - Range; M (SD)	2–19; 9.75 (3.73)
Child sex (male) – %	50.9
Child race/ethnicity^a - %	
White	44.7
African-American or Black	5.3
Hispanic	9.6
Asian-American	7.9
Native-Hawaiian, or other Pacific Islander	0.9
American Indian or Alaskan Native	0.9
Parent relation to the children in the study – %	
Biological parent	94.7
Adoptive parent	5.3
Parent race/ethnicity – %	
White	79.7
African-American or Black	2.7
Hispanic	9.5
Asian-American	10.8
Native-Hawaiian, or other Pacific Islander	0
American Indian or Alaskan Native	0
Parent education – %	
High school or below	5.4
Some college or vocational/technical school	12.2
Bachelor's degree	33.8
Master's degree or above	48.6
Parent relationship status (married or living with partner) – %	89.2
Subjective social status^a – M (SD)	7.10 (1.31)
Geographic location – %	
Urban	31.1
Suburban	59.5
Rural	9.4
Parent health conditions (underlying mental or physical health condition) – %	36.5

^aMay not equal 100 due to multiple response options, or due to missing/nonresponse.

Recruitment

We advertised the opportunity to participate in the study through postings on community-based social networking sites (e.g., Craigslist, Next Door, Patch), summer camp websites, and social media (e.g., Facebook, Instagram). We also contacted parenting groups, children's activity organizations (e.g., Girl Scouts), advocates for parent and child mental health, and research collaborators within the field of child development to advertise the study.

Procedures

The UCLA Institutional Review Board approved all procedures prior to study inception. After consenting to study participation, parents completed a survey comprising 16 anonymous, self-report and parent proxy-report online questionnaires (median time to completion = 42 min), with five attention checks throughout the survey. Then, parents were asked to write about their experience of the COVID-19 pandemic for five minutes.

Parents' written reflections on the COVID-19 pandemic were collected from April to May 2020, during which world-wide lockdown measures were implemented. On May 25th, 2020, the death of George Floyd garnered widespread news attention, and may have contributed to unique stressors, especially among youth of color. For this reason, we only collected written reflections from the study inception (April 2020) to May 2020, as we wanted to capture parents' emotional responses to the pandemic specifically.

Parents were provided the opportunity to enroll in a raffle to win one of twenty \$100 gift cards; however, inclusion in the raffle was not dependent on study enrollment nor survey completion. Parents could progress to the next page of the survey even if items were incomplete, which may have contributed to missing data on parent and child demographic variables.

Preregistration

Analyses presented in this paper were preregistered (https://osf.io/qzb52/?view_only=f2d1342251c6467fb088586e723f2c6b) before being performed, though after data were collected. We completed most preregistered analyses as planned and acknowledge deviations from the pre-registration plan in the Methods section.

Measures

Parent fear/Anxiety

Fear of illness and virus evaluation (FIVE)-parent. Parents reported on their fear in response to the COVID-19 pandemic using the FIVE (Ehrenreich-May, 2020). The FIVE consists of four subscales that assess COVID-19-specific fears and behaviors: (1) fears about contamination and illness (9 items); (2) fears about social distancing (10 items); (3) behaviors related to illness and virus fears (14 items); and (4) impact of illness and virus fears (2 items). Response items for each subscale were averaged to yield a mean score per subscale; higher scores indicate more fear/anxiety. Prior work has validated the FIVE in adult, non-English-speaking populations (e.g., Deek et al., 2021; Tounsi et al., 2021). Alpha reliabilities for the first two subscales were good and alpha reliabilities for the last two subscales were questionable: $\alpha_{\text{subscale1}} = 0.913$; $\alpha_{\text{subscale2}} = 0.820$; $\alpha_{\text{subscale3}} = 0.684$; $\alpha_{\text{subscale4}} = 0.684$. Only scores on the first two subscales (fears about contamination and illness and fears about social distancing) were retained for subsequent analyses because of questionable reliability of the latter subscales in the current study.

State anxiety. Parents reported on their state anxiety using the 6-item short-version of the state anxiety subscale of the State-Trait Anxiety Inventory (short version of the STAI; Marteau & Bekker,

1992; $\alpha = 0.91$). Item subscale scores were averaged; higher scores indicate greater anxiety. Alpha reliability was acceptable ($\alpha = 0.798$).

Parent natural language use

Parents were asked to write about their “deepest thoughts and feelings about how COVID-19 has affected you and your family” for five minutes. The prompt was altered from past research which used writing as a therapeutic activity (Pennebaker, 1997). Parents’ natural language use during this written reflection was analyzed using Linguistic Inquiry Word Count analysis software (LIWC2015; Pennebaker et al., 2015). LIWC evaluates text on standardized linguistic behavior categories, including use of first-person singular pronouns (e.g., “I,” “me,” “mine”; hereafter referred to as *I*-talk) and use of first-person plural pronouns (e.g., “we,” “us,” “our”; hereafter referred to as *we*-talk). LIWC tabulates word count as the percentage of total words found in a given category, thus accounting for the length of the text. Word count was also derived from the LIWC program. Prior work supports the reliability and validity of the LIWC system (Pennebaker et al., 2003; Pennebaker et al., 2015). Examples of relatively high levels of *I*-talk and of *we*-talk can be found in the Supplementary Material.

Child fear/Anxiety

Fear of illness and virus evaluation (FIVE)-child. Parents reported on their children’s fear in response to the COVID-19 pandemic using the FIVE, which has parallel subscale and scoring to the parent-report version. Prior work indicates the FIVE-child has good psychometric properties (including good internal consistency of each subscale; $\alpha = 0.87\text{--}0.92$) among parents of children ages 3-to-18 years (Sáez-Clarke et al., 2022). In the current study, alpha reliabilities were good-to-excellent for the first two subscales, questionable for the third subscale, and acceptable for the fourth subscale: $\alpha_{\text{subscale1}} = .914$; $\alpha_{\text{subscale1}} = .877$; $\alpha_{\text{subscale1}} = .669$; $\alpha_{\text{subscale1}} = .787$. Only scores on the first two subscales (fears about contamination and illness and fears about social distancing) were retained for subsequent analyses because of concerns about reliability of the latter subscales in this sample.

Child anxiety. Parents reported on their children’s anxiety with the 14-item Anxiety subscale of the shortened Revised Children’s Anxiety and Depression Scale-Parent Report (RCADS-P-25; coefficient omega hierarchical = .71-.74; Ebesutani et al., 2012). Items were averaged to create a mean score for child anxiety, with higher scores indicating greater child anxiety. Alpha reliability was good ($\alpha = 0.821$).

Parent and child demographics

Parents reported child age, child gender (male or female), parent gender (male or female), geographic location (urban, suburban, or rural), number of children, social status (reported with Macarthur Scale of Subjective Social Status-Adult Version; Adler et al., 2000), parent ethnicity (not Hispanic or Latinx, Hispanic or Latinx), parent biological relation to child (biological or adoptive parent), household type (single-parent, dual-parent, or other), and primary caregiver’s highest level of education (high school or below; some college or vocational/technical; bachelor’s; or master’s or above).

Data analysis

Identifying latent fear/anxiety constructs in parents and children.

Latent constructs of parent and child fear/anxiety were identified through confirmatory factor analysis (CFA). Residual indicator variances were not correlated. Factor analyses differed from the preregistration in three ways. First, although we initially proposed calculating subscale total scores, we calculated subscale mean scores, given the different number of items per subscale. Second, as described above, we chose to only include the two fear subscales of the FIVE. Third, given the

multilevel nature of data on child fear/anxiety (i.e., children nested within families), we conducted CFAs of child fear/anxiety using cluster-robust standard errors.

Primary moderation analyses

Given the multilevel nature of our data, our primary hypothesis that parent natural language use moderates the effect of parents' fear/anxiety on child fear/anxiety was evaluated using multilevel structural equation modeling. Due to the dearth of accepted methods for estimating multilevel SEM with latent variable interactions, factor scores of parent fear/anxiety and child fear/anxiety were saved from preliminary analyses and used as manifest variables in primary analyses. A random effect was included for the intercept of child fear/anxiety at Level 2; due to the small number of observations at Level 1 (1–4 children per family, with 65% of parents reporting on 1 child), a random effect of the slope of child fear/anxiety regressed on child age was not included at Level 2. Separate analyses were conducted for (1) the main and interactive effects of parent fear/anxiety and parent *we*-talk, adjusting for covariates and parent *I*-talk and (2) the main and interactive effects of parent fear/anxiety and parent *I*-talk, adjusting for covariates and parent *we*-talk. Exogenous variables were allowed to correlate with each other.

As described in our preregistration, posthoc probing of significant interaction effects was conducted using Preacher et al.'s (2006) online utility for estimating the regions of significance for a 2-way interaction in a multilevel regression model. Only regions of significance on natural language use that fall within the range of observed values are reported. In addition, significant interaction effects were probed by testing the significance of the simple slopes of the relation between parent fear/anxiety and child fear/anxiety at average (mean), low (-1 SD), and high ($+1$ SD) levels of parental natural language use (Aiken & West, 1991). Supplementary analyses also present the regions of significance on parent anxiety and the significance of the simple slopes of the relation between parental natural language use and child fear/anxiety at average (mean), low (-1 SD), and high ($+1$ SD) levels of parent fear/anxiety.

All analyses were conducted using *Mplus* (*Mplus* v.8.4; Muthén & Muthén; 1998–2017). Although our preregistration proposed using restricted maximum likelihood estimation (REML), we instead used full ML estimation, assuming data are missing at random, which is a comparable approach and performs equally well when sample sizes are greater than 50 (McNeish, 2016).

Sensitivity and exploratory analyses

Sensitivity analyses included comparing the statistical significance and pattern of primary results when analyses were re-run (1) among the sample who passed all five attention checks ($N = 72$ parents and 112 children), (2) among the sample who used *we*-talk exclusively in reference to their family ($N = 61$ parents and 97 children), and (3) without covariates.

Exploratory analyses were performed to separately examine the pattern of results within younger children and within older children and adolescents. Subsamples were divided based on the median age of children in the sample. Analyses were re-run separately among the sample of younger (i.e., less than 10 years) children ($N = 45$ parents and 59 children) and older (i.e., 10 years or older) children ($N = 41$ parents and 55 children). Given the smaller sample size of the subsamples, no covariates were included in these exploratory analyses and we did not evaluate whether the patterns of results within each subsample statistically differed from each other.

Results

Descriptive statistics

Table 2 presents descriptive statistics and bivariate correlations of primary study variables. All parents in the study sample provided data on their and their child's/children's fear and anxiety. Whether or not parents reported the race/ethnicity of their children was not related to primary

Table 2. Descriptive statistics and correlations.

Variable	M (SD)	1	2	3	4	5	6	7	8	9	10
1. Parent fear/anxiety	−0.02 (0.25)	–									
2. Parent fears about contamination and illness	0.93 (0.55)	.96**	–								
3. Parent fears about social distancing	0.73 (0.47)	.77**	.61**	–							
4. Parent anxiety (STAI)	2.04 (0.52)	.62**	.49**	.44**	–						
5. Parent <i>we</i> -talk	2.38 (1.96)	.27**	.25**	.26**	.16	–					
6. Parent <i>I</i> -talk	6.49 (3.58)	−0.10	−0.02	−.26**	−.10	−.44**	–				
7. Child fear/anxiety	0.00 (0.22)	.39**	.34**	.48**	.15	.07	−.23*	–			
8. Child fears about contamination and illness	0.61 (0.55)	.33**	.30**	.39**	.06	.08	−.24*	.94**	–		
9. Child fears about social distancing	0.81 (0.57)	.35**	.27**	.48**	.18	.01	−.19*	.90**	.74**	–	
10. Child anxiety (RCADS)	0.47 (0.36)	.41**	.36**	.41**	.25**	.15	−.15	.72**	.59**	.56**	–

Note. Fear/anxiety are factor scores. STAI = State-trait anxiety – state scale. RCADS = Revised children's anxiety and depression scale – anxiety scale. ** $p < 0.01$. * $p < .05$.

study variables (all p 's > .27). No outliers were identified on primary study variables. Data were normally distributed (West et al., 1995).

Identifying latent constructs of parent and child fear/Anxiety

Model fit indices are not available as the models of parent and child fear/anxiety are just-identified. Factor loadings $\geq .63$ are very good (Tabachnick & Fidell, 2007). Parent fears about contamination and illness ($\lambda^* = 0.88$), parent fears about social distancing ($\lambda^* = 0.71$), and parent state anxiety ($\lambda^* = 0.55$) loaded significantly onto the parent fear/anxiety factor, all p 's < .001. Child fears about contamination and illness ($\lambda^* = 0.88$), child fears about social distancing ($\lambda^* = 0.84$), and child anxiety ($\lambda^* = 0.67$) loaded significantly onto the child fear/anxiety factor, all p 's < .001.

Covariate selection

Based on their associations with primary study variables (see Supplementary Materials), child age, parent subjective social status, and number of children were retained as covariates in primary analyses.

Primary moderation analyses

We-talk

The estimated ICC for child fear/anxiety was 0.87. The variance of the intercept random effect at Level-2 was 0.029, $p < .001$, indicating significant variability with regard to child fear/anxiety between families. On average, at the within-participant level, there was a non-significant effect of child age on child fear/anxiety, $B = 0.001$, $SE = 0.004$, $p = 0.699$. At the between-participant level, there was a significant interaction effect of parent fear/anxiety and parent *we-talk* on child fear/anxiety, $B = 0.072$, $SE = 0.033$, $p = 0.028$. In the context of this significant interaction effect, parent fear/anxiety, $B = 0.296$, $SE = 0.090$, $p = 0.001$, parent *we-talk*, $B = -0.030$, $SE = 0.015$, $p = 0.053$, and parent *I-talk*, $B = -0.016$, $SE = 0.007$, $p = 0.017$, were each related to child fear/anxiety. Neither parent subjective social status nor number of children were related to child fear/anxiety (p 's > .18).

Posthoc probing of the simple slopes involved in the significant interaction revealed there was a significant positive relation between parent fear/anxiety to child fear/anxiety at average and high levels of parent *we-talk* (average levels of *we-talk*, $Est = 0.30$, $SE = 0.09$, $p = 0.001$; above average levels of *we-talk*, $Est = 0.45$, $SE = 0.12$, $p < 0.001$; See Figure 1) but not at below average levels of *we-talk* ($p = 0.19$). Calculation of the regions of significance indicated that the positive relation of parent fear/anxiety to child fear/anxiety is significant when parents' *we-talk* is no less than 0.73 SD below the sample mean (85% of the sample).

I-talk

The estimated ICC for child fear/anxiety was 0.87. The variance of the intercept random effect at Level-2 was 0.029, $p < .001$, indicating significant variability with regard to child fear/anxiety between families. On average, at the within-participant level, the fixed effect of child age on child fear/anxiety was not significant, $B = 0.002$, $SE = 0.004$, $p = 0.651$. At the between-participant level, there was a significant interaction effect of parent fear/anxiety and parent *I-talk*, $B = -0.044$, $SE = 0.022$, $p = 0.048$, on child fear/anxiety. In the context of this significant interaction effect, there was a significant effect of parent fear/anxiety, $B = 0.311$, $SE = 0.091$, $p = 0.001$, on child fear/anxiety. Parent *I-talk*, parent *we-talk*, parent subjective social status, and number of children were not related to child fear/anxiety (p 's > .09).

Posthoc probing of the simple slopes revealed there was a significant positive relation of parent fear/anxiety to child fear/anxiety at low and average levels of parent *I-talk* (below average levels of *I-talk*, $Est = 0.47$, $SE = 0.13$, $p < 0.001$; average levels of *I-talk*, $Est = 0.31$, $SE = 0.09$, $p = 0.001$) but

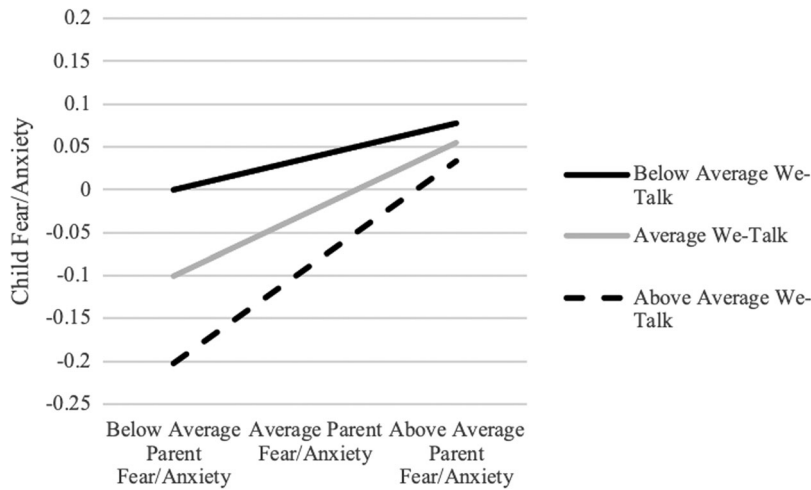


Figure 1. Effect of Parent Fear/Anxiety on Child Fear/Anxiety, by Parent We-Talk. Note. Fear/anxiety are saved factor scores capturing general anxiety and pandemic-related fear. Estimate of simple slope of effect of parent fear/anxiety on child fear/anxiety was statistically significant at above average we-talk (Est = 0.446, SE Est = 0.119, $p < .001$) and average we-talk (Est = 0.296, SE Est = 0.092, $p = .001$), but not below average we-talk (Est = 0.146, SE Est = 0.111, $p = .19$). Results of Wald tests indicate differences in child fear/anxiety are significant at below average parent fear/anxiety but not at above average parent fear/anxiety.

not at above average levels of *I*-talk ($p = 0.17$; see Figure 2). Calculation of the regions of significance indicated that the positive relation of parent fear/anxiety to child fear/anxiety is significant when parents' *I*-talk is no more than 0.73 SD above the sample mean (74% of the sample).

Sensitivity and exploratory analyses

The pattern of primary results remained unchanged when analyses were re-run (1) among the sample who passed all attention checks, (2) among the sample who used *we*-talk exclusively in reference to their family, and (3) without covariates (see Supplementary Material for results).

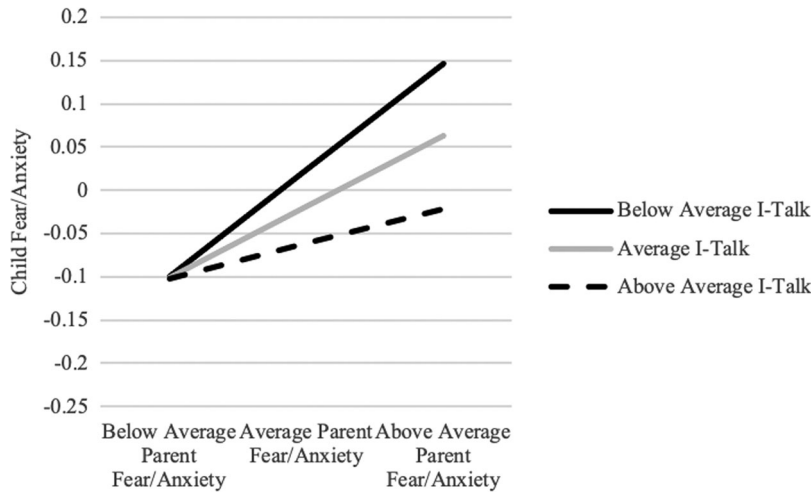


Figure 2. Effect of Parent Fear/Anxiety on Child Fear/Anxiety, by Parent *I*-Talk. Note. Fear/anxiety are saved factor scores capturing general anxiety and pandemic-related fear. Estimate of simple slope of effect of parent fear/anxiety on child fear/anxiety was statistically significant at below average (Est = 0.467, SE Est = 0.132, $p < .001$) and average *I*-talk (Est = 0.311, SE Est = 0.093, $p = .001$), but not above average *I*-talk (Est = 0.154, SE Est = 0.113, $p = .172$). Results of Wald tests indicate differences in child fear/anxiety are significant at above average but not at below average parent fear/anxiety.

For both models of *we*-talk and of *I*-talk, the pattern and statistical significance of primary results for younger children (who were less than 10 years of age) was generally consistent with the results for the full sample. However, among the subsample of older children (who were 10 years of age or older), for both models of *we*-talk and of *I*-talk, the interaction effects between parents' pronoun use (*we*- or *I*-talk) and parent fear/anxiety on child fear/anxiety were no longer significant (see Supplementary Material).

Discussion

Extending evidence that children share their parents' anxiety and pandemic-specific fears (Li & Zhou, 2021; Orgilés et al., 2021; Radanović et al., 2021; Uy et al., 2022), and that families vary in the strength of this association (Bate et al., 2021; Cohodes et al., 2021), we sought to evaluate whether the relation between parents' and their children's anxiety and pandemic-specific fears differed depending on parents' natural language use. Contrary to expectations, we found that the positive relation between parents' fear and anxiety and their children's fear and anxiety was stronger at higher levels of parental *we*-talk. Though children whose parents used higher *we*-talk had less fear and anxiety than their counterparts at every level of parent fear and anxiety, there was only evidence of significant benefits of higher parent *we*-talk in the context of lower parent fear and anxiety, such that higher *we*-talk allowed children to reap the benefits of relatively lower parent distress. In contrast, higher parental *I*-talk dampened the association between parent and child fear and anxiety, serving as a potential buffer against the effects of higher parental fear/anxiety. Exploratory analyses indicated that the moderating effects of parents' first-person pronoun use were only evident for children less than 10 years of age, consistent with literature demonstrating that buffering effects are attenuated as children approach adolescence (Doom et al., 2015; Gunnar, 2017; Hostinar et al., 2015).

Our results suggest the protective benefits of parental *we*-talk deteriorated at higher levels of parental anxiety and pandemic-related fear. Consistent with evidence that *we*-talk increases after mass traumatic events (e.g., Mehl & Pennebaker, 2003), we found that parents who reported more anxiety/fear also used more *we*-talk when reflecting on the pandemic. These findings dovetail with recent evidence from a daily diary study that found parents reported increased worry, while simultaneously feeling closer to their children, during the pandemic (Kerr et al., 2021). Bringing theories of corumination (e.g., Rose, 2002) to bear on these findings, we posit that distressed parents who perseverate on pandemic-related fears and worries will frequently discuss and revisit conversations about the pandemic with their family that lead to a stronger sense of togetherness but such behavior may inadvertently reinforce or increase preexisting anxiety (Byrd-Craven et al., 2010). Further, our findings extend prior theories and evidence on corumination by suggesting that *we*-talk, in the context of high parental fear and anxiety, may undermine *both* parents' and their children's wellbeing.

Surprisingly, parents' greater use of *I*-talk was associated with less child fear and anxiety, especially in the context of greater parent fear and anxiety. Though prior work has found parent *I*-talk was related to less caregiver warmth and sensitivity (Foley et al., 2020; Humphreys et al., 2018), in the unique context of the pandemic, positive parenting may be fostered by parents' ability to distinguish between their own and their children's unique stressors associated with the pandemic. It is also possible that parents' use of *I*-talk reflects recognition of children's autonomy, and in turn less over-controlling parent behavior, which may disrupt the link between parents' anxiety and child inhibition and anxiety (Telman et al., 2018). Taken together, our results suggest there are benefits associated with *both* higher parental *we*- and *I*-talk when reflecting on the pandemic. While closeness, reflected in *we*-talk, may be most helpful in the context of relatively low parental fear and anxiety, greater self-focus, reflected in *I*-talk, may be more helpful when parents experience relatively more fear and anxiety. As parents' pandemic-related cognitions likely shape

their behavior, future examination of parenting correlates of parents' pronoun use, particularly in longitudinal studies that are better positioned to evaluate potentially causal relations, is warranted.

Our results cohere with prior evidence of diminished parental stress buffering in adolescence (Doom et al., 2015; Gunnar, 2017; Hostinar et al., 2015) by demonstrating specificity of the joint contributions of parents' natural language use and parent fear and anxiety to children who are less than 10 years old. As anxiety is one of the most common disorders of childhood (Merikangas et al., 2010), with deleterious developmental sequelae even at subclinical levels, our results suggest parents' cognitive representation of pandemic-related fears and general worry may be a modifiable protective factor with cascading benefits for young children. In contrast, given the relevance of other socialization agents (e.g., peers) for older children and adolescents, youth appraisals of the pandemic and associated coping may be less strongly influenced by their parents' narratives. Our results were also obtained using parent-report of youth fear and anxiety, which may be less valid for adolescents. Especially among families with adolescents, parents and children may have divergent perceptions of adolescent fear/anxiety, which may influence the strength and pattern of findings regarding the transmission of parent fear/anxiety and between-family differences therein. Additional research is also needed to evaluate youth's perceptions of their own fear/anxiety.

In addition, research is needed to identify *how* parent natural language use alters the association between parent and youth fear/anxiety, as well as other potential sources of risk or resilience in the family. Evaluation of parent-child language style matching (Gonzales et al., 2010) could help evaluate the proposed mechanism of transmission – whether parents' cognitive approach to reflecting on the pandemic directly shapes children's appraisal of the pandemic. Replicated evidence that parent natural language use fails to attenuate the association of parents' and their child's fear and anxiety, across multiple informant perspectives, would strengthen claims that parental stress-buffering diminishes in adolescence and necessitate examination of alternative protective factors. Unique protective factors for older children and adolescents to the effects of higher levels of parent anxiety and pandemic-related fear may include additional sleep and decreased academic pressures.

The present study benefited from several strengths. Extending descriptive studies of families' responses to the pandemic, the present study accounts for adult and child response variability. Whereas prior work has typically evaluated either parents' general anxiety or pandemic-specific fears, we evaluated a latent construct of parents' anxiety and pandemic-specific fears related to contamination, illness, and social distancing, which offers a broader and richer view of adjustment (Solmi et al., 2021). Notably, prior work on protective factors against the intergenerational transmission of parent fear and anxiety has relied on self-report from a single informant (Bate et al., 2021; Cohodes et al., 2021), rendering it susceptible to shared method and reporting biases, whereas the present study benefited from the use of an observed measure of parents' natural language use. Prior work suggests that assessment of linguistic style from a text sample is more strongly associated with objective ratings of emotionality than participants' self-reported levels of emotionality (Pennebaker et al., 2003).

At the same time, our results must be understood in the context of our study's limitations. Given our desire to reduce participant burden, participants' written reflections on the pandemic were an optional part of data collection, resulting in a small sample size for the present analyses. In addition, though it is likely that parents' written reflections on the pandemic also reflect how they talk about the pandemic to or around their children, we were unable to directly observe parents' COVID-19-related discussions with their children. Further, though we evaluated sociodemographic factors that could potentially confound relations between parents' natural language and child fear and anxiety (e.g., parental education, household SES), there may be other unmeasured confounds (e.g., parent verbal intelligence) that could influence observed relations. Our cross-sectional design precludes a test of directionality, which would benefit from repeated assessments of both parent and child fear and anxiety, as well as the use of multiple informants to rate parents' and children's fear and anxiety; yet, given the difficulty of data collection during the pandemic, many studies including our own have relied on single informants (Solmi et al., 2021). Our results support the reliability and

validity of widely-used assessments of parent and child pandemic-related fear and general anxiety during this time. However, further psychometric evaluation of these instruments is needed. Our results may not generalize to other time points in the pandemic, given evidence that adult mental health symptoms ebbed and flowed with the severity of viral mitigating protocols (Ebrahimi et al., 2021), and may vary depending on families' ethnic composition and sociodemographic characteristics. Though our decision to stop data collection was also influenced by increases in racist acts in the spring of 2020, experiences of racism in their communities and across the nation may have increased distress, particularly among youth of color (Luthar et al., 2021), and may have also altered how families discuss their experiences during this time period. Finally, inclusive *we-talk* may have different meaning in single- versus dual-parent families, especially given marital quality is a significant protective factor from maternal anxiety for school-aged children (Cameron et al., 2020).

Overall, our results add to a burgeoning literature that demonstrates, regardless of their age, children whose parents endorse high levels of anxiety and pandemic-related fear are also more likely to experience high levels of fear and anxiety. To support children's adjustment, we must also support parents' wellbeing in the face of challenges brought on by the pandemic (Luthar et al., 2021). At the same time, our results also suggest that parents' mental health is not their children's destiny. The ways in which parents reflect on the pandemic may be a potentially modifiable behavior that alters parenting behavior and in turn their child's fear and anxiety. Specifically, thinking about how "we" as a family are positively coping with the pandemic, as well as distinguishing one's individual responses (e.g., *I-talk*) especially when parents are more distressed, may promote child resilience. Cognitive-behavioral interventions, which are well-established treatments for anxiety, target parents' cognitive and natural language use about the pandemic and may help reduce the intergenerational transmission of anxiety and pandemic-related fear.

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Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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