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Promoting Adolescents' Social Responsibility through Parent-Adolescent Conversations about the COVID-19 Pandemic

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A B S T R A C T

Purpose: This longitudinal mixed-method study examined the content and qualities of parent-adolescent conversations about the COVID-19 pandemic, and whether discourse about social responsibility (i.e., care for others and health protective behaviors [HPBs]) within conversations predicted changes in adolescents' socially responsible behavior across the first year of the pandemic.

Methods: Participants were 122 ethnically/racially diverse parent-adolescent dyads from Southern California. In spring 2020 (Time 1), adolescents completed an online survey measuring their engagement in HPBs (e.g., social distancing) and prosociality (both pandemic-specific and global). A few months following survey completion (Time 2), parent-adolescent dyads engaged in an audio-recorded conversation about the pandemic. In winter 2020 (Time 3), adolescents' engagement in HPBs and prosociality were reassessed via an online survey.

Results: Dyads spent 25% of conversational turns, on average, discussing social responsibility (4% and 21% of turns discussing care for others and HPBs, respectively). Internal state language reflecting emotion terms was positively correlated with the proportion of conversational turns spent discussing care for others and negatively associated with conversational turns spent discussing HPBs. Regression analyses revealed that both care for others and HPB conversation themes uniquely predicted increases in adolescents' engagement in HPBs over time; however, care for others was a stronger predictor ($\beta = 0.24$ vs. $\beta = 0.16$). Discussions about care for others (but not HPBs) predicted increases in pandemic-specific prosociality, but not global prosocial behavior.

Discussion: Parent-adolescent conversations may be rich ground for the socialization of adolescents' social responsibility during crises and can inform best practices for engaging adolescents in current and future community health initiatives.

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IMPLICATIONS AND CONTRIBUTION

This investigation demonstrated that adolescents' COVID-19 health protective behaviors and prosociality during the pandemic may be encouraged through care-oriented conversations with their parents. Findings can inform strategies to engage youths' socially responsible behavior during times of crisis.

Encouraging socially responsible behavior amongst adolescents, such as health protective behaviors (HPBs; e.g., hand washing) and/or direct prosociality toward vulnerable others,

remains vital for limiting the spread of the COVID-19 virus and supporting community-level wellbeing [1]. Social responsibility is an orientation that reflects concerns beyond personal wants, needs, or gains, and is theorized to motivate prosocial and civic behaviors [2]. Parents have been responsible for encouraging social responsibility in their children during the pandemic [3]; however, little is known about what this socialization looks like.

Conflicts of interest: The authors have no conflicts of interest to disclose.

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In this mixed-method longitudinal study, we observed parent-adolescent conversations about the pandemic and assessed how the content discussed in these conversations related to changes in adolescents' engagement in socially responsible pandemic behavior (measured via survey reports) over the first year of the COVID-19 pandemic.

Conversations about social responsibility during the pandemic

According to sociocultural theory [4], parent-child conversation is considered to be a vehicle through which sociomoral development occurs. During the pandemic, parents reported discussing an array of topics with their children, such as mental health, social inequality, lifestyle changes, and topics relevant to social responsibility (e.g., viral transmission suppression) given the moral salience of the pandemic with regard to how it has affected individuals' health and wellbeing [1,3,5,6]. However, to address ongoing gaps in understanding how parents and adolescents naturally discuss these topics, we observed conversations about the pandemic between parents and adolescents and the extent to which their conversations naturally focused on social responsibility—specifically themes of care for others' welfare and HPB engagement during the pandemic. This approach sheds light on the content, structure, and dynamics of typical pandemic conversations between dyads as they might actually occur in daily life.

Internal state language within conversations

In addition to conversational content, the linguistic features of conversations are important to examine because they provide insight into the mechanisms through which conversations might influence behavioral outcomes. For example, discussing experiences using internal state language (i.e., language that reflects cognitive and emotional processing) facilitates ongoing processing of events and meaning making of emotional experiences [7]. Internal state language may also lay the foundation for prosocial motivations. For example, adults who expressed internal state language (i.e., negative emotions) in their social media posts about the pandemic were also more likely to express prosocial tendencies within those posts [8]. Here, we explored whether internal state language within parent-adolescent conversations about the pandemic was positively associated with discussions of social responsibility (i.e., care for others and HPBs).

Promoting socially responsible pandemic behavior over time

According to the Health Belief Model [9] and Perception Motivation Theory [10], the extent to which youth engage in pandemic behaviors depends on intrapersonal factors such as appraisals (e.g., perceived threat of virus) and beliefs (e.g., efficacy of protective behavior)—factors that are largely shaped by social forces. Social interactions that occur through conversations direct youths' attention to behavioral expectations [11]. Indeed, conversations about specific behaviors often shape the degree to which youth engage in those behaviors [12]. In the context of the pandemic, recent work has shown that the frequency of parent-child general pandemic conversations promoted adolescents' adherence to HPBs (but only when adolescents experienced low levels of stress) [6]. We extended this research by examining how the *specific content* within parent-adolescent conversations about the pandemic—especially content pertaining to social

responsibility—predicted changes in adolescents' engagement in socially responsible pandemic behaviors across the first year of the pandemic.

Present study

This study had three overarching aims. First, we investigated how many conversational turns (i.e., one utterance by the parent followed by the adolescent's response [or vice versa]) parents and adolescents allocated to discussing themes about social responsibility in their conversations about the pandemic. We hypothesized that themes pertaining to social responsibility (e.g., care for others and HPBs) would be prominent within dyads' conversations [3,5,6]. Second, we examined internal state language and predicted that internal state language (particularly emotion terms) would be positively associated with themes of care for others (but not HPB themes) because of the emotional nature of discussing others' welfare [8]. Third, we sought to understand how conversations about social responsibility would influence changes in adolescents' engagement in socially responsible pandemic behavior (i.e., engagement in HPBs and pandemic-specific prosociality) over the first year of the pandemic. We hypothesized that adolescents in dyads that spent more turns discussing social responsibility would report increased engagement in HPBs and pandemic-specific prosocial behavior over time (but not global prosocial behavior) [1,6,13].

We focused on parent-adolescent conversations because adolescents had relatively low personal risk of suffering severe health consequences from COVID-19 and thus may have had little intrinsic incentive to adhere to protective measures despite their contributions to viral transmission [14]. We examined changes in adolescents' HPBs and prosocial behaviors from the beginning to the end of the first year of the pandemic because pharmaceutical interventions were not readily available, transmission rates were high, and the virus was particularly dangerous at that time, rendering socially responsible behavior crucial for community health.

Method

Participants

Participants were 122 parent-adolescent dyads ($M_{\text{age_adolescents}} = 15.22$; $SD = 0.58$; 48% female sex assigned at birth; $M_{\text{age_parents}} = 42.76$; $SD = 6.96$; 96% biological mothers) in Southern California, United States. Participants were part of an ongoing study of child development since the preschool period and were recruited via flyers placed in community-based child-care centers. Continuing families ($N = 235$) received an invitation (via email and phone) to complete two online surveys regarding the COVID-19 pandemic and an intervening phone interview about their experiences during the pandemic. The current study included dyads who completed the phone interview portion of the study and at least one survey ($n = 122$).

Adolescents were diverse in their race/ethnicity, such that 46.7% were Latine, 23.8% were multiracial, 20.5% were Black, and 9.0% were White. Dyads were economically diverse with 18.0% residing below 130% of the poverty line and qualifying for government assistance, such as food stamps. Regarding parental education, 16.2% of parents had not completed high school, 12.6% had a high school diploma or GED, 52.9% had some technical

training or college coursework, and 18.3% had a bachelor's or higher degree.

Procedure

Informed consent and assent were obtained at the start of each assessment across three time points. First, adolescents completed an online survey on their devices in spring 2020 (Time 1 [T1]). Second, adolescents completed an audio-recorded phone interview with their participating parent and a trained interviewer between July 2020 and March 2021 (Time 2 [T2]), wherein they discussed the pandemic in any way they wished for eight minutes. Interviewers remained silent for the duration of the conversation and only interrupted when the eight minutes had passed. Conversations were transcribed verbatim for later coding and analysis. Third, adolescents completed a follow-up online survey in winter 2020/2021 (Time 3 [T3]). Surveys took ~1–1.5 hours each and the phone interview took ~30 minutes to complete. Both adolescents and caregivers received a \$40 gift card for completing the interview, and a \$25 gift card and \$75 gift card for completing the survey at T1 and T3, respectively. All procedures were approved by the ethics review boards of the participating universities.

Measures

Conversations

Conversational themes. We developed a coding scheme based on previous research [5,6] to assess conversational content (see Table A1 in Supplementary Material). Four research assistants familiarized themselves with a subset of the data, generated initial themes, developed and reviewed themes, and refined the specific parameters of each theme [15]. Once a clear protocol and codebook were established, conversations were coded turn-by-turn by the four research assistants using a collaborative approach to thematic analysis. Coders were female undergraduate students in their final year of college with a background in psychological science. Coders were sociodemographically diverse, in their mid-20s, and were not parents. Each conversation was coded by two coders and discrepancies were resolved in consensus meetings [3]. Consensus coding is a rigorous process that is effective when working in larger coding groups [16,17]. We employed the gold standard approach to ensure reliability of our coding scheme whereby 15% of the cases (603 turns; randomly chosen transcripts) were coded independently and compared to the final codes (Cohen's $\kappa = 0.94$, κ range = 0.79–0.99).

Scoring. Conversational themes were coded "1" when the theme was present within a conversational turn and "0" when the theme was absent. Multiple themes could be coded in a single conversational turn, and the same theme could be coded multiple times across the conversation. The frequency of each theme was summed across turns for parents, adolescents, and the dyads. Proportional scores for each theme within each participant were calculated as the sum of the number of times the theme was mentioned divided by the total sum of all frequencies across themes. This score reflected the extent to which each theme was prioritized within the conversation relative to other themes and allowed us to better control for talkativeness compared to raw frequency scores. Proportional scores across

parents and adolescents were strongly correlated for themes of care for others ($r = 0.84$) and HPBs ($r = 0.85$). We combined parent and adolescent scores because socialization is a bidirectional process and conversations are interactive and collaborative by nature [18].

HPB guideline agreement (control). Conversations were coded for whether parents and adolescents agreed with the Centers for Disease Control and Prevention (CDC) HPB guidelines because we expected that disagreeing with HPB guidelines would negatively influence adolescents' HPB engagement. Since a small percentage of parents (6.6%) and adolescents (9.8%) expressed some disagreement, we combined across informants (0 = dyads did not express disagreement with HPB guidelines, 1 = parent and/or adolescent expressed some level of disagreement). Only dyads who mentioned HPBs within their conversations (98.4%) received a guideline agreement code.

Internal state language. Internal state language was coded using the Linguistic Inquiry and Word Count (LIWC) [19] software to measure adolescent, parent, and dyadic expression. LIWC is a validated software for analyzing word use and assesses over 100 dimensions of text by comparing words in written transcripts against extensive dictionaries of conceptually related terms [20]. Variables were computed as percentages (i.e., number of terms from a given category out of the total word count in the entered text). The current study focused on emotion (e.g., love, bad, hate, tough) and cognitive processing terms (e.g., cause, know, ought), which we examined separately by each speaker and together as a composite score.

Health protective behavior adherence

At both T1 and T3, adolescents reported how often in the past two weeks they engaged in COVID-19 HPBs. HPBs were assessed across 14 items at T1 and 21 items at T3 on a scale from 1 (*not at all*) to 5 (*always*). Items involved cleanliness (e.g., hand washing), public spaces/travel (e.g., avoiding travel), social distancing, and staying home (McDonald's ω T1 = 0.91; ω T3 = 0.92). An additional seven items were added at T3 to reflect changes to CDC recommendations between T1 and T3 (e.g., wearing a mask, wearing gloves, isolating when experiencing symptoms). We created a mean score at each timepoint to assess adolescents' general adherence to HPBs.

Pandemic-specific prosociality

Adolescents reported how much concern they felt for vulnerable others and their prosocial responses to the pandemic at T1 and T3 across five items [21]. Items were rated on a scale from 1 = not true to 3 = certainly true (e.g., "I am very concerned about those who are most vulnerable from getting sick from the coronavirus/COVID-19"; "I am finding ways to be helpful in my home or community in response to coronavirus/COVID-19 [e.g., doing more chores, babysitting siblings, making masks for hospital workers]") and averaged across items for analyses (McDonald's ω T1 = 0.86; ω T3 = 0.84).

Global prosociality

Adolescents reported on their general tendency to care for others and engage in prosocial behavior at T1 and T3 using the

Table 1
Means, Standard Deviations, and Correlations of Study Variables

Variable	Observed range	M (SD)	1	2	3	4	5	6	7	8	9	10
1. Care for others – conversational theme (T2)	0.00–0.31	0.04 (0.06)	-									
2. HPB – conversational theme (T2)	0.00–0.60	0.21 (0.13)	-0.01	-								
3. General pandemic – conversational theme (T2)	0.00–0.84	0.19 (0.14)	0.02	-0.06	-							
4. Emotion terms (T2)	0.97–7.95	4.11 (1.47)	0.29***	-0.23*	-0.12	-						
5. Cognitive terms (T2)	0.00–22.57	13.25 (3.64)	0.00	-0.03	0.37***	0.09	-					
6. HPB adherence (T1)	1.14–5.00	4.14 (0.81)	0.19*	-0.01	-0.22*	0.13	0.06	-				
7. HPB adherence (T3)	1.24–5.00	3.73 (0.81)	0.38***	0.13	-0.10	0.13	0.52***	0.33***	-			
8. Pandemic-Specific prosociality (T1)	1.00–3.00	2.30 (0.56)	0.29***	0.02	0.07	0.00	-0.09	0.41***	0.39***	-		
9. Pandemic-Specific prosociality (T3)	1.00–3.00	2.34 (0.54)	0.34***	-0.07	0.04	0.00	-0.09	0.38***	0.58***	0.54***	-	
10. Global prosociality (T1)	1.00–3.00	2.42 (0.47)	0.15	-0.03	-0.10	-0.02	-0.13	0.32**	0.10	0.27**	0.42***	-
11. Global prosociality (T3)	1.00–3.00	2.48 (0.42)	0.16	0.04	0.09	-0.03	-0.10	0.10	0.06	0.61***	0.61***	0.39***

Conversational themes reflect the proportion of conversational turns spent discussing each theme.

HPB = Health protective behaviors.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Prosocial Subscale of the Strengths and Difficulties Questionnaire [22]. Adolescents rated five items (e.g., "I am helpful if someone is hurt, upset, or feeling ill.") on a scale from 1 = *not true*, to 3 = *certainly true*. Items were aggregated to create a composite score (McDonald's ω T1 = 0.79; ω T3 = 0.76).

Missing data

Of the 122 parent-adolescent dyads, data were missing for HPBs at T1 (12.3%) and T3 (6.6%), pandemic-specific prosocial behavior at T1 (12.3%) and T3 (8.2%), and global prosocial behavior at T1 (12.3%) and T3 (8.2%). All three timepoints were completed by 101 dyads and there were no significant differences between those who completed all assessments and those who did not across all study variables. Little's MCAR test was non-significant, $\chi^2(55) = 60.67, p = .28$, indicating that the pattern of missing data was not associated with observed scores across the study variables. Data were handled using the Full Information Maximum Likelihood (FIML) procedure available in *Mplus* [23].

Data analytic plan

Descriptive analyses were conducted using IBM SPSS Version 27. The remaining analyses were conducted in *Mplus* 8.5 [24] using the Maximum Likelihood Robust (MLR) estimator [25]. First, we identified the mean proportion of turns dyads spent discussing social responsibility. Second, we evaluated correlations between the proportion of conversational turns spent discussing care for others and HPBs with the percentage of internal state language terms used within the conversation. Third, we conducted two regression analyses examining (1) HPB engagement at T3 (controlling for T1) on discussions about care for others and HPBs and (2) simultaneously regressing pandemic-specific prosociality at T3 (controlling for T1) and global prosocial behavior at T3 (controlling for T1) on themes of care for others and HPBs. Both models controlled for adolescents' sex assigned at birth and race/ethnicity as well as HPB guideline disagreement and general pandemic-related discussion not pertaining to social responsibility. Regression analyses excluded 26 dyads who completed the conversation after the T3 survey. A sample of 100 was sufficient to detect small-medium effects for a multiple linear regression (power = 0.80) [26].

Results

Descriptive statistics

Means, ranges, standard deviations, and bivariate correlations across study variables are presented in Table 1. Out of 976 minutes of pandemic-related conversation, 4,640 conversational turns across 122 dyads were assessed. On average, dyads took 38.03 conversational turns (range = 5–86; SD = 15.94) in their 8-minute discussion about the pandemic. Parents typically uttered more words than adolescents, $t(118) = 7.36, p < .001$, Cohen's $d = 0.68, M_{diff} = 269.42$ words. Parents and adolescents did not statistically differ in the number of turns they spent discussing care for others, $t(121) = 1.73, p = .09$, Cohen's $d = 0.16$, or HPBs, $t(121) = 1.75, p = .08$, Cohen's $d = 0.16$. Parents and adolescents did not significantly differ in their use of emotion, $t(118) = 1.36, p = .18$, Cohen's $d = 0.13$, or cognitive terms, $t(118) = 0.77, p = .44$, Cohen's $d = 0.07$.

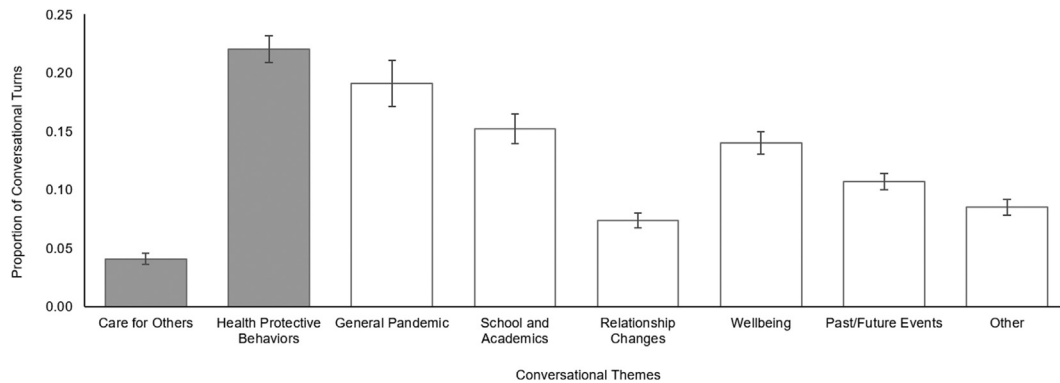


Figure 1. Average Proportion of Conversational Turns Spent Discussing Themes in a Conversation About the Pandemic. Themes relevant to social responsibility during the pandemic (i.e., care for others and health protective behaviors) are shaded in gray.

HPBs, pandemic-specific prosociality, and global prosocial behavior were positively correlated across time points (within and across measures). On average, adolescents engaged in lower rates of HPBs at T3 compared to T1, $t(102) = 4.33, p < .001$. There were no significant changes in pandemic-specific or global prosociality across time, and no significant differences in adolescents' sex at birth, race/ethnicity, or family economic status across study variables. Age was not significantly correlated with any study variables.

Talking about social responsibility within pandemic conversations

Dyads mentioned a range of themes within their conversations, including social responsibility (i.e., care for others and HPBs), general discussions of the pandemic (e.g., opinions, virus-related discussions, societal changes due to the pandemic), changes to schooling and relationships, mental health and coping, and opportunities/events in the past or future. Dyads varied in the proportion of conversational turns allocated to their discussion of various themes (see Figure 1). Social responsibility was the most prominent theme discussed amongst dyads, accounting for 25% of conversational turns on average. Within social responsibility, themes of care for others (e.g., parent: "I think it's sad, the people that have died, the people that have contracted it."; adolescent: "So I don't think you know until you have it. All you can do is empathize with those who have lost [someone].") and HPBs (e.g., parent: "We've been trying our best

to stay inside and stay healthy"; adolescent: "We have to wear a face mask, [...] stay six feet apart.") accounted for 4% and 21% of conversational turns, respectively. While 44 dyads (36%) did not mention care for others in their conversations, only two (1.6%) did not discuss HPBs.

Associations between internal state language and conversation themes

On average, 4% of words used in parent-adolescent conversations about the pandemic were emotion terms, 13% of words reflected cognitive processes, and the two were positively correlated (see Table 1). Emotion terms were positively correlated with themes of care for others, but negatively correlated with HPB themes. Cognitive terms were not significantly correlated with either social responsibility theme.

Conversation themes predicting change in socially responsible pandemic behavior

Both the proportion of turns spent discussing care for others and those spent discussing HPBs uniquely predicted adolescents' increased adherence to HPBs over time (see Table 2). These themes accounted for 8% of the variance in change in adherence to HPBs. Interestingly, the Wald Test of Parameter Constraints indicated that talking about care for others more strongly predicted adherence to HPBs than talking about HPBs, $\chi^2(1) = 4.58$,

Table 2
Multiple regression analysis predicting change in adolescents' adherence to HPBs

Variables	ΔR^2	β	B	SE	p	95% CI	
						LL	UL
Controls							
Sex assigned at birth (1 = female)	0.41	0.16	0.26	0.12	.04	0.01	0.50
Race/ethnicity (1 = Latine)		-0.05	-0.09	0.12	.48	-0.32	0.15
HPB Adherence at T1		0.51	0.50	0.09	.00	0.35	0.67
HPB Guidelines disagreement at T2 (1 = disagreement)		-0.22	-0.80	0.37	.03	-1.52	-0.08
Main Predictors - Conversational Themes at T2							
Care for others	0.08	0.24	3.48	1.07	.00	1.39	5.57
HPBs		0.16	1.02	0.48	.04	0.07	1.97
General pandemic		-0.01	0.05	0.46	.92	-0.86	0.94
Total R^2 estimate	0.49						

Conversational themes reflect the proportion of conversational turns spent discussing each theme.

CI = confidence interval; HPB = health protective behaviors; LL = lower limit; SE = standard error; T1 = time 1; T2 = time 2; UL = upper limit.

Table 3
Multivariate multiple regression analysis predicting change in adolescents' pandemic-specific and global prosociality

Variables	Pandemic-specific prosociality (T3)						Global prosociality (T3)					
	ΔR^2	B	SE	p	95% CI		ΔR^2	B	SE	p	95% CI	
					LL	UL					LL	UL
Controls	0.40						0.19					
Sex assigned at birth (1 = female)		0.15	0.09	.11	-0.04	0.33		0.10	0.09	.30	-0.08	0.27
Race/Ethnicity (1 = Latine)		0.26	0.09	.004	0.08	0.43		0.15	0.08	.06	-0.01	0.31
Prosocial predictor at T1		0.50	0.08	<.001	0.35	0.66		0.28	0.09	.003	0.10	0.46
HPB guidelines disagreement at T2 (1 = disagreement)		-0.14	0.19	.46	-0.50	0.22		-0.21	0.31	.51	-0.82	0.41
Main Predictors - Conversational themes at T2	0.05						0.03					
Care for others		1.74	0.63	.01	0.50	2.97		0.97	0.71	.19	-0.42	2.30
HPB		-0.30	0.35	.39	-0.99	0.38		0.07	0.33	.85	-0.59	0.72
General pandemic		-0.26	0.27	.34	-0.79	0.27		0.23	0.27	.41	-0.30	0.75
Total R² estimate	0.45						0.22					

Conversational themes reflect the proportion of conversational turns spent discussing each theme. CI = confidence interval; HPB = health protective behaviors; LL = lower limit; SE = standard error; T1 = time 1; T2 = time 2; UL = upper limit.

$p = .03$. A multivariate multiple regression showed that the proportion of conversational turns discussing care for others (but not HPB discussions) predicted increases in pandemic-specific (but not global) prosociality over time (see Table 3). These themes accounted for 5% of the variance in change in pandemic-specific prosociality. See Figure 2 for illustration and standardized beta weights.

Discussion

This study documented features of parent-adolescent conversations about the COVID-19 pandemic and demonstrated that what parents and adolescents talk about within their pandemic-focused conversations may shape adolescents' long-term engagement in public health initiatives. As expected, social responsibility themes (i.e., care for others and HPBs) were prominent in pandemic conversations. Themes of care for others (but not HPBs) featured particularly high levels of internal state language (specifically emotion terms). Finally, conversations saturated with social responsibility themes predicted increases in

adolescents' socially responsible behavior over the first year of the pandemic.

Supporting recent research, parents in this sample discussed an array of topics when talking about the pandemic with their children, such as social responsibility, academics, and mental health [3]. This suggests that parent-adolescent conversations may serve multiple functions such as orienting youth to other-oriented behavior during times of crisis and helping them to process potentially stressful psychological and academic challenges brought on by the pandemic. Within discussions related to social responsibility, dyads only discussed care for others (e.g., empathizing with others and discussing ways to help those in need) for a small fraction of the conversation on average (4% of conversational turns), focusing more on discussing CDC recommended HPBs (21% of conversational turns). The limited proportion of conversational turns dyads allocated to discussions of care for others is concerning because navigating and containing this pandemic demanded explicit consideration for the welfare of others [27]. Although parents' responses to children's (ages 3–12 years) questions about the COVID-19 pandemic often include discussions about care for others [5], it is possible that

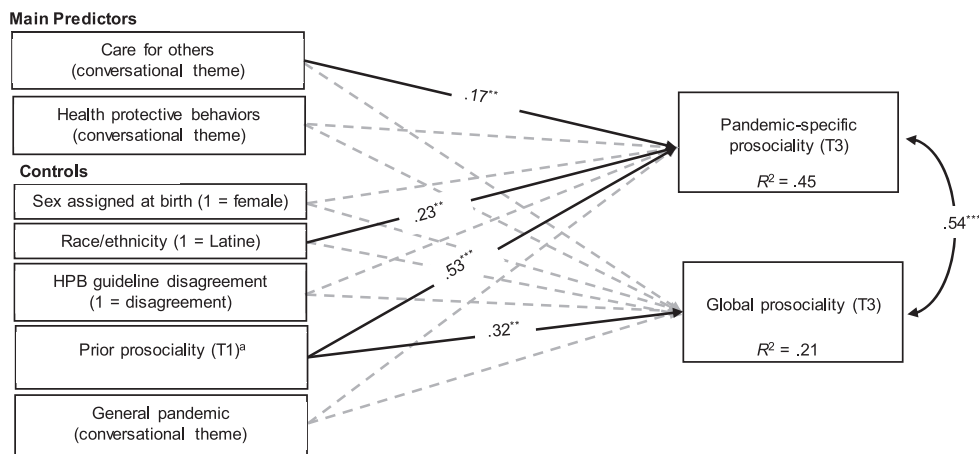


Figure 2. Multivariate Multiple Regression Model Predicting Change in Pandemic-Specific and Global Prosociality. Black solid lines signify statistically significant paths and gray dashed lines signify non-significant paths. Coefficients are standardized regression coefficients. Fit statistics are not reported because the model is saturated. Conversational themes are proportional scores. *To measure change, pandemic-specific prosociality at T1 was controlled when predicting pandemic-specific prosociality at T3, and global prosociality at T1 was controlled when predicting global prosociality at T3. ** $p < .01$, *** $p < .001$.

conversations with adolescents are unique. Further, discussions about care for others and HPBs were not significantly correlated, which may suggest that parents discuss HPBs without explaining the implications of these behaviors for the health of others. In talking to adolescents, parents may talk through HPB recommendations without elucidating underlying reasons for adherence, which leaves adolescents to glean this insight on their own. This pattern is of particular concern given developmentally appropriate increases in egocentrism during adolescence [28].

Overall, dyads did not express high levels of internal state language, particularly emotion terms, in their conversations, which is consistent with previous research showing that parent-child dyads from Germany and Estonia talked very little about emotions within their pandemic conversations [29]. However, we found that emotion language (but not cognitive language) was positively correlated with discussions of care for others. As discussed further below, in the context of parent-adolescent conversations, emotion terms may magnify the salience of conversations about care and thus motivate adolescents to act upon prosocial tendencies [30]. Interestingly, emotion terms were negatively associated with talking about HPBs, indicating that dyads may have focused their conversations about HPBs on information conveyance rather than on understanding the psychological implications of HPBs for oneself or others. There is a need for additional research on the role of internal state language in both other- and self-oriented behavior motivation [31].

Specific discussions about social responsibility during the pandemic (but not discussions about the pandemic more broadly) within parent-adolescent conversations were associated with increases in adolescents' engagement in socially responsible pandemic behaviors (i.e., HPB adherence and direct prosociality toward vulnerable others) across the first year of the pandemic. Importantly, conversations that focused on care for others (compared to direct discussions about HPBs) more strongly influenced increases in adolescents' engagement in HPBs over time compared to direct conversations about HPBs. Discussions about care for others were also associated with increases in adolescents' prosociality toward vulnerable others during the pandemic—a pattern that did not generalize to changes in adolescents' global prosocial behavior. This pattern is consistent with previous research showing a shift toward pandemic-specific prosocial behavior, rather than global prosociality, during the pandemic [32]. By highlighting the ways in which adolescents can help others in need, parents may have sparked adolescents' empathic concern and perspective-taking [21,32], inspired their motivation to make a difference [1], and expanded their pandemic-specific prosocial repertoire [32]. Care-oriented conversations may have emphasized the thoughts, emotions, and needs of others during the pandemic in ways that helped adolescents understand who needs help and how to support them. Internal state language reflecting emotion terms also may have contributed to these associations, as suggested by previous research showing that adults who expressed emotions in social media posts (especially anger) about the pandemic were also more likely to mention prosocial tendencies within those posts, thereby demonstrating the potential role of negative emotions in driving prosocial motivation [8].

The current findings are notable such that our sample of adolescents were already engaging in relatively high levels of HPBs at the beginning of the pandemic and the longitudinal trend was for HPB engagement to decrease. Additionally, parent-adolescent conversations promoted increased social responsibility during a

time when the United States was experiencing its first peak in COVID-cases (i.e., winter of 2020/21). This illustrates the potential power of parent-adolescent conversations in promoting sustained and time-sensitive commitments to community-level health. Indeed, having emotionally salient conversations with adolescents about caring for others during times of crisis (including perspective-taking, expressing empathy, and discussing potential prosocial actions) may be a promising avenue for health interventions more broadly. Specifically, promoting adolescents' engagement in behaviors related to communicable diseases (such as the cold/flu virus and/or sexually transmitted infections) and environmental crises (such as climate change) through care- and health behavior-oriented dialogue may improve the wellbeing of current and future generations.

Limitations and future directions

This study has some limitations that illuminate promising future directions. First, we examined our research questions in a sample of adolescents from the United States during one period of development (mid-adolescence), which limits the generalizability of our findings. Second, difficulty scheduling assessments during the pandemic precluded uniform data collection intervals across dyads, such that 8% of the families provided conversation data after the second survey (and were excluded from the main analyses). Third, although there were no significant differences across dyads with complete and partial data, unobservable selection bias may have influenced how these dyads discussed the pandemic. Fourth, our analysis did not assess the extent to which parents (vs. adolescents) initiated discussions about social responsibility (which could speak to parent socialization). Finally, we did not assess if and how the relationship quality between parents and adolescents may have influenced conversational and behavioral patterns [33,34].

Conclusion

Parent-adolescent conversations about social responsibility encouraged adolescents' socially responsible behavior in the context of the COVID-19 pandemic and may be harnessed to combat other diseases (e.g., influenza) and crises (e.g., climate change). Having conversations with adolescents, not only about how to engage in protective behaviors, but also about how those behaviors affect others may motivate youth to engage in public health initiatives to protect themselves and their broader community from harm.

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Supplementary Data

Supplementary data related to this article can be found at [10.1016/j.jadohealth.2023.06.019](https://doi.org/10.1016/j.jadohealth.2023.06.019).

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