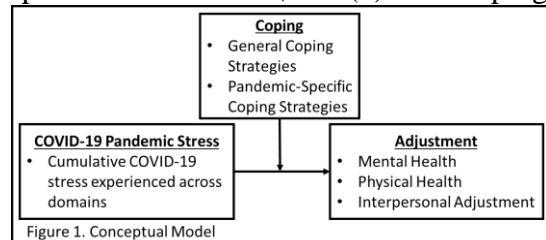


The Role of Coping in Buffering the Impact of COVID-19 Stress on Families

1. DETAILED PLAN OF PROJECT

A. Specific Aims

The COVID-19 pandemic poses unprecedented challenges to society^{1,2}. Although news outlets have focused on the economic impact^{3,4}, the psychological toll of the pandemic cannot be ignored^{5,6}. The vast majority of Americans report that the Coronavirus is a significant stressor⁷, with families being particularly affected due to changes in work, school/day care schedules, and access to community support⁸. However, little is known about: (1) how COVID-19 stress affects psychological, physical, and interpersonal adjustment of parents and children; and (2) what coping mechanisms may mitigate negative impacts. Answering these questions is vitally important. Such information is critical for informing policy decisions to address the psychological impact of the pandemic on families, and necessary to equip psychological professionals with tools to help families cope during this challenging time^{5,6}. This project directly addresses each of these pressing questions by targeting two aims: (1) determine the impact of COVID-19 stress on parent and child functioning across domains of adjustment (mental health, physical health, interpersonal adjustment) and (2) identify coping mechanisms that mitigate the negative impacts of COVID-19 stress (Fig. 1).



Hypotheses: Experiencing greater COVID-19 stress will be linked with poorer adjustment in mothers, fathers, and children across domains, including mental health, physical health, and interpersonal adjustment. Further, as elaborated below, both general and pandemic-specific positive coping strategies will buffer the negative impact of COVID-19 stress on adjustment.

B. Relevant Background

Aim 1: Determine the Impact of COVID-19 Stress on Parent and Child Adjustment

Little is known about the psychological impacts of the pandemic on families, an important knowledge gap undermining psychological health professionals' ability to enact effective treatment⁵⁻⁶. The effects may be especially burdensome on parents of young children because stay-at-home orders tasked them with the education and full-time care of their children. These challenges are compounded by work-related stressors (e.g., working from home), lack of social support, and need for young children to remain under close adult supervision⁹⁻¹¹. Importantly, the study sample comprises mothers and fathers. Given the increasing role fathers play in children's development and the relative lack of research on fathers¹²⁻¹⁵, their inclusion is a unique strength of this research. Young children are particularly vulnerable, placing them at increased risk^{12,16-18}, due to (1) limitations in their cognitive capacity to comprehend the situation and changes in life circumstances (including loss of social network)¹⁹⁻²⁰ and (2) their dependency on care from parents whose physical and emotional availability may be compromised by COVID-19 stress²¹.

Although little is known about how the COVID-19 pandemic has affected families, research on disasters is useful in informing the scope and design of investigations on the pandemic because of several common characteristics, including: dramatic changes in life circumstances (e.g., job loss, disruption of daily routines), acute and long-term stressors, and uncertainty. Review of the literature reveals important take-aways. The impacts of disasters are wide-ranging, including negative effects on mental health (e.g., post-traumatic stress, anxiety, depression, substance abuse)

and physical health (e.g., sleep disruptions, chronic fatigue, weight change)²²⁻²⁷. Due to imposed social distancing measures to combat virus spread, the pandemic's impact might extend beyond mental and physical health to include interpersonal functioning, including declines in close relationship quality (e.g., greater conflict, lower satisfaction)²⁸⁻²⁹. Thus, although prior research is informative, the pandemic poses unique, unprecedented challenges, the effects of which remain unknown, making the need for research urgent^{1,5,30}. To advance understanding of how the pandemic affects families, the proposed investigation takes a comprehensive approach to assessment, including developmentally appropriate measures of mental health, physical health, and interpersonal functioning (see Measures). It is expected that the experience of greater COVID-19 stress will be linked with poorer mother, father, and child adjustment across domains.

Aim 2: Identify Coping Mechanisms that Mitigate the Negative Impacts of COVID-19 Stress

Identifying factors that mitigate the negative impact of COVID-19 stress on adjustment is critical to promoting well-being. Coping strategies have been implicated in playing a key role in buffering the impact of disasters on children's and adult's adjustment³¹⁻³³. Moreover, unlike personality traits (e.g., resiliency)²², coping strategies are more easily modified³⁴⁻³⁵. Thus, they represent potentially useful targets for therapy and intervention. Given the unprecedented nature of the pandemic, the proposed research employs a multi-level approach to assessing coping, including well-validated measures of general coping, newly developed pandemic coping measures, and narrative data from participants describing their experiences with the pandemic.

Regarding general measures, consistent with prior research and individual's developmental capacity³⁶⁻³⁷, parents will report on their coping strategies and the practices they use to influence their child's strategies to manage stressful events. The measures produce composites of negative (e.g., self-criticism) and positive (e.g., cognitive restructuring) coping. Drawing on prior disaster research^{12,16-17,22-24}, the use of greater positive and fewer negative general coping strategies is expected to reduce the negative impact of COVID-19 stress on parent and child adjustment.

Coping measures specific to the COVID-19 pandemic were also developed and are informed by decades of research on coping and more recent research on disaster coping³⁸⁻³⁹. Social distancing has created dramatic disruptions to social networks. This is particularly problematic given that research reveals the important role of social support in buffering the negative impacts of disasters on adjustment^{12,16-17}. Thus, in the current study, a pandemic-specific questionnaire was developed to assess how families have adjusted their behavior to cope with social distancing and promote connectedness (e.g., "during the pandemic, how often has your family had meals together?"). It is expected that greater engagement in activities that promote social connection will reduce the negative impact of COVID-19 stress on parent and child adjustment.

Drawing from developmental and social psychological literatures on parent-child conversations, emotion socialization, and meaning-making in narrative⁴⁰⁻⁴⁶, participants described (via writing for parents; via conversations with parents for children) positive and negative experiences with the pandemic and the impact of the pandemic on their future. These rich narrative data provide nuanced insight into cognitive (i.e., meaning making) and emotional (i.e., specificity in emotional expression) strategies likely useful for coping with the pandemic⁴⁷⁻⁴⁹. Flexibly expressing context-relevant negative (e.g., when discussing challenges) and positive (e.g., when discussing positive experiences) emotion and making meaning from negative events (e.g., when discussing future hopes) are emotional and cognitive strategies identified in prior work to promote

resilience^{48,50-51} and thus, are expected to mitigate the impact of COVID-19 stress on adjustment.

C. Significance of Project

The knowledge gained from this research will be significant and have strong translational significance. COVID-19 stress has been particularly acute for families of young children, placing both parents and children at heightened risk for adjustment problems. This study will provide some of the first comprehensive evidence regarding how COVID-19 stress is impacting parents and young children across key domains of adjustment. An innovative feature of this study is that the sample comprises families for whom adjustment was assessed prior to the pandemic, providing important controls that enhance causal inference of the impact of the pandemic. Critically, this study will identify coping mechanisms that buffer the negative effects of COVID-19 stress. The comprehensive approach to assessing coping will identify specific coping mechanisms that prove effective in mitigating the negative impacts of the pandemic on adjustment, providing new insight into specific targets for treatment and intervention. Indeed, the COVID-19 coping measures have the potential to be especially informative for treatment because, for example, the micro-level coding of narratives provides specific, concrete targets for intervention (e.g., the capacity to elaborate on causes and consequences of feelings about the pandemic in specific [vs. general] emotion terms may be particularly beneficial)⁴⁷⁻⁴⁹. Thus, in addition to advancing family science research on risk and resilience and psychological research on disasters and coping, findings will provide psychological professionals with critical knowledge of how COVID-19 stress impacts families with young children and specific intervention targets to inform treatment plans.

D. Method and Procedure

Participants. Participants were 67 mothers, fathers, and their 3- to 5-year-old children followed from infant age 6 months and living in the area surrounding Columbia, MO. COVID-19 data collection occurred between May–July 2020 and is complete. Participant race/ethnicity (77% White/Caucasian, 9% Asian, 6% Hispanic, 4% Black/African American, 4% other) and family income (median: \$61-70,000; range: <\$10,000->\$100,000) were representative of the area⁵² and did not significantly differ from the original sample (p 's >.05).

Procedure. Mothers and fathers completed online questionnaires and completed conversations with their child about coping with the pandemic recorded via Zoom (11 families were unable to complete this task due to limited internet access). Families were compensated \$50 for participating.

Measures. The research team has experience with proposed measures, and measures have sound psychometric properties. Narrative coding will be conducted by staff blind to other data and inter-rater reliability will be calculated on 20% of transcripts. Developmentally appropriate measures were used to assess functioning across outcome domains. See Appendix A for questionnaires.

COVID-19 Pandemic Stress. The Epidemic-Pandemic Impacts Inventory⁵³ was completed by parents to assess COVID-19 pandemic stress across domains (e.g., work, finances). Cumulative stress will be created by summing the total number of pandemic stressors for mothers and fathers.

Mental Health. Parents completed questionnaires regarding their mental health selected to be inclusive of symptom range as informed by disaster research. Mothers and fathers reported their anxiety symptoms (General Anxiety Disorder Scale⁵⁴), depression symptoms (Center for Epidemiological Studies of Depression Scale⁵⁵), post-traumatic stress symptoms (Peritraumatic Distress Inventory⁵⁶), and substance use (e.g., alcohol/tobacco/etc. consumption). Parents reported on child internalizing and externalizing symptoms (Child Behavior Checklist⁵⁷).

Physical Health. Parents completed questionnaires regarding their physical health selected to be inclusive of symptom range according to developmental stage as informed by prior disaster research. Mothers and fathers reported on their physical health (Short Form Health Survey [SF-36]⁵⁸), physical activity (Stanford Brief Activity Survey⁵⁹), and sleep (Pittsburgh Sleep Quality Index⁶⁰). Parents reported on their child's physical health and activity (Child Health Questionnaire⁶¹) and sleep (Children's Sleep Habits Questionnaire⁶²).

Interpersonal Adjustment. Participants completed questionnaires on interpersonal adjustment. Central relationships in adulthood are romantic relationships⁶³. Thus, mothers and fathers reported on the quality of their romantic relationship (Dyadic Adjustment Scale [DAS]⁶⁴). For young children, their primary relationships are with parents⁶⁵. Thus, parents reported on the quality of their child's relationship with them (Child-Parent Relationship Scale⁶⁶).

Coping. Participants completed general and pandemic-specific assessments of coping. General coping. Mothers and fathers reported on their coping strategies for stress/negative experiences (Brief-COPE³⁷) and the strategies they socialize their child to use to cope with stress (Parental Socialization of Coping Questionnaire³⁶). Pandemic-specific coping. Participants completed self-report and narrative measures developed for the COVID-19 pandemic. Mothers and fathers completed questionnaires about themselves and their child to assess behavioral strategies to cope with the pandemic and social distancing. A composite variable reflecting the degree to which the family engaged in activities expected to promote social connection (e.g., "how often does your family engage in cooperative activities"; "how often does your family eat meals together?") will be created by averaging relevant items. Mothers and fathers were also provided with 3 prompts to write about the biggest challenge, most positive experience, and hopes for their family for the future. Mothers and fathers (separately) discussed with their child the child's biggest challenge, most positive experience, and hopes for the future. Conversations were recorded via Zoom for offline transcription. Narratives will be coded for indices of cognitive coping, including meaning making (e.g., resolutions, redemptive story arcs) and for indices of emotional coping, including emotional expression and explanation (e.g., emotion labels, causes/consequences of emotions) using established coding procedures that the research team has extensive experience with⁶⁷⁻⁶⁸. Given the unprecedented nature of the pandemic, narratives may reveal strategies not yet identified in prior work. Thus, we anticipate developing new schemes to capture pandemic-specific coping.

Covariates. Participants' mental health, physical health, and interpersonal adjustment were assessed at prior waves of data collection. Thus, prior functioning will be controlled for to enhance causal inference of pandemic-specific effects. Demographic variables (e.g., race/ethnicity, income) significantly associated with key study variables will be controlled for analyses.

Planned Analyses. Power analysis indicates 80% power to detect medium main and interaction effects ($f^2=.10$) common in research on disasters^{12,16-17}. To examine the impact of COVID-19 stress on adjustment (Aim 1), linear regressions will be conducted separately for each outcome and for mothers, fathers, and children, respectively. Each outcome (e.g., depressive symptoms) will be regressed on cumulative COVID-19 stress, controlling for prior levels of the outcome and demographic covariates. Because children may be affected by parents' pandemic adjustment, parents' adjustment will be included in regression analyses for children. Availability of mother and father data reduces single-informant bias by allowing for different reporters of independent (e.g., mother-reported depression) and dependent (e.g., father-reported child depression) variables.

To examine the moderation effect of coping strategies (Aim 2), a main effect of coping (separate models conducted for general and each pandemic-specific strategy) and its interaction with COVID-19 stress will be added to regression models for Aim 1. To examine whether significant main and interaction effects are robust to shared variance among dependent variables, multivariate regression specificity analyses will be conducted.

E. Justification

There is urgent need for research identifying ways to help families cope with the significant stressors they face due to the pandemic to promote well-being. Thus, this research is timely, making it critical findings be disseminated rapidly. The inclusion of observations of parent-child conversations is innovative, as virtually all research on the psychological impact of the pandemic rely on questionnaire data. These data position the research team well to publish in high impact, peer-reviewed journals, in which they have a strong track record of publishing. These data will also provide unique insight into specific intervention targets (e.g., capacity to elaborate on causes/consequences of feelings about the pandemic in specific [vs. general] emotion terms) beyond those identified in questionnaires (e.g., general positive coping). However, these data are cost- and time-intensive to reduce and code (see Budget Justification). By supporting this project, the career goals of PI (an expert in risk and resilience in families) and Co-I Bohanek (an expert in narrative processes, emotion socialization, and meaning making in families) will be advanced. Specifically, the research team plans to publish findings in a special issue of *Child Development* (the top developmental psychology journal) on the impact of the pandemic on children (manuscript due Feb. 2021) and to present findings at the biennial meeting of SRCD (the leading developmental conference) in a symposium on COVID-19. This rich data set will yield several other manuscripts, including papers on the impact of COVID-19 stress on parent adjustment and (leveraging data from prior assessments) the role of early experiences in promoting resilience during the pandemic. Findings will be leveraged to secure external funding (e.g., Fast Grants and National Council on Family Relations COVID-19 research mechanisms) to longitudinally follow the sample to examine the enduring v. transient impact of the pandemic on families. Further, given the potential of findings from this research to improve the lives of families and in line with the mission of the University of Missouri as a land-grant institution to conduct research that promotes societal well-being, findings will be broadly disseminated to the local community via established partnerships (e.g., Parents as Teachers, MU Connector) and public via press releases and established partnerships with research policy organizations (e.g., Child Trends).

F. Timeline

	20-Nov	20-Dec	21-Jan	21-Feb	21-Mar	21-Apr	21-May	21-Jun	21-Jul	21-Aug	21-Sep	21-Oct
Data Reduction/Analysis												
Parent-Child Narratives Transcribed	X											
Narrative Data Coded	X	X	X		X	X	X	X	X	X	X	X
Data Analysis		X	X			X	X	X	X	X	X	X
Publications & Conferences												
Manuscript for Special Issue of <i>Child Development</i>		Writing	Writing	Submit			Revise		Published			
Preparation/submission other manuscripts						X	X	X	X	X	X	X
SRCD Conference Symposium						Present						

Note. The following updates were made to the timeline: (1) Letter of Intent was submitted to *Child Development* for special issue on COVID-19, (2) due to the pandemic, the timeline for manuscript submissions has been extended (see Appendix B), (3) abstract for symposium to be presented at SRCD biennial meeting was submitted, and (4) questionnaire data have been reduced.

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67. Bohanek, J. G., & Fivush, R. (2010). Personal narratives, well-being, and gender in adolescence. *Cognitive Development*, *25*(4), 368-379. doi: 10.1016/j.cogdev.2010.08.003
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2(a). BIOGRAPHICAL SKETCH/CURRICULUM VITAE

A. Education/Training

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Wellesley College	BA	05/2006	Psychology
University of Illinois at Urbana- Champaign	PhD	08/2012	Developmental Psychology
Center for Developmental Science, University of North Carolina at Chapel Hill	Postdoc	07/2014	Developmental Science

B. Employment History

2012-2014 Postdoctoral Fellow, Center for Developmental Science, University of North Carolina
2014-present Assistant Professor of Psychological Sciences, University of Missouri
2020-present Associate Professor of Psychological Sciences, University of Missouri

C. Research Support

University of Missouri Research Board

9/1/2016 – 8/31/2018

Title: “*Developmental Origins of Infant EEG Asymmetry*”

Role: PI

Award Amount: \$43,000

Psi Chi Undergraduate Research Grant (Caldo, Paul)

3/1/2018 – 2/28/2019

Title: “*Individual Differences in Attachment Insecurity as Assessed with the Attachment Script Assessment: Validation of New Scales in a Young Adult Sample*”

Role: Faculty Sponsor

Award Amount: \$1,497; Honorarium: \$1,500 awarded as a result of application being top rated

National Science Foundation (Project #00069886)

9/15/2020-9/14/2025

Title: “*Neural Responding to Infant Distress Cues over the Transition to Motherhood*”

Role: PI

Award Amount (Combined Direct/Indirect): \$800,000

D. Publications (selected from 20 peer-reviewed journal articles, 4 peer-reviewed chapters)

†graduate student co-author; ^undergraduate student co-author, *refereed journal

1. Roisman, G. I. (2009). Adults’ autonomic and subjective emotional responses to infant vocalizations: The role of secure base script knowledge. *Developmental Psychology*, 45, 889-893.
2. Roisman, G. I., Van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., & Fearon, R. P. (2012). The significance of insecure and disorganized attachment for children’s internalizing symptoms: A meta-analytic study. *Child Development*, 83, 591-610.

3. *Roisman, G. I., Booth-LaForce, C., Belsky, J., Burt, K. B., & A. M. (2013). Molecular-genetic correlates of infant attachment: A cautionary tale. *Attachment & Human Development, 15*, 384-406.
4. Fearon, R. P., Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., Steele, R. D., & Roisman, G. I. (2014). The significance of attachment security for children's social competence with peers: A meta-analytic study. *Attachment & Human Development, 16*, 103-136. *Top downloaded article published in Attachment & Human Development in 2014.*
5. Roisman, G. I., Booth-LaForce, C., Fraley, R. C., Owen, M. T., Cox, M. J., & Burchinal, M. R. (2014). Stability of attachment security from infancy to late adolescence. *Monographs of the Society for Research in Child Development, 79*, 51-56.
6. *Booth-LaForce, C., Burchinal, M. R., Roisman, G. I., Owen, M. T., & Cox, M. (2014). Caregiving and contextual sources of continuity and change in attachment security from infancy to late adolescence. *Monographs of the Society for Research in Child Development, 79*, 67-84.
7. * Roisman, G. I., Haydon, K. C., Bost, K., McElwain, N., ^Garcia, L., & ^Hester, C., (2015). Mothers' electrophysiological, subjective, and observed emotional responses to infant crying: The role of secure base script knowledge. *Development and Psychopathology, 27*, 1237-1250.
8. ., Narayan, A., Bakermans-Kranenburg, M. J., Roisman, G. I., Vaughn, B., Fearon, R. P., & Van IJzendoorn, M. H. (2017). Attachment and temperament in the early life course: A meta-analytic review. *Child Development, 88*, 770-795.
9. *, Fearon, R. P., Van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., & Roisman, G. I. (2017). Attachment in the early life course: Meta-analytic evidence for its role in socioemotional development. *Child Development Perspectives, 11*, 70-76. *Article is top downloaded and cited in publication history and number one article contributing to journal's impact factor.*
10. *, & Haydon, K. C. (2018). Mothers' neural and behavioral responses to their infants' distress cues: The role of secure base script knowledge. *Psychological Science, 29*, 242-253. *APA Division 7 Early Career Outstanding Paper Award*
11. *†Jin, K., ^Houston, J. L., Baillargeon, R., & Roisman, G. I. (2018). Young infants expect an unfamiliar adult to comfort a crying baby: Evidence from a standard violation-of-expectation task and a novel infant-triggered-video task. *Cognitive Psychology, 102*, 1-20.
12. *†Martin, J., Anderson, J., ... Roisman, G. I. (2018). Maternal sensitivity during the first 3½ years of life predicts electrophysiological responding to and causal attributions of infant crying at midlife. *Developmental Psychology, 54*, 1917-1927. doi: 10.1037/dev0000579
13. *, Propper, C., Mills-Koonce, R., Moore, G., Calkins, S., & Cox, M. (2019). Mothers' physiological and affective responding to infant distress: Unique antecedents of avoidant and resistant attachments. *Child Development, 90*, 489-505.
14. *& Narayan, A. (2019). Infant attachment insecurity and baseline physiological activity and physiological reactivity to interpersonal stress: A meta-analytic review. *Child Development*. Early view online.
15. *Haltigan, J. D., Roisman, G. I., Booth-LaForce, C., Rogosch, F. A., Cicchetti, D., & Holland, A. H. (2019). Origins of attachment states of mind in caregiving within and outside of the normative range: Cross-racial and cross-sex generalizability in two longitudinal studies. *Journal of Child Psychology and Psychiatry*. Early View Online.

2(b). BIOGRAPHICAL SKETCH/CURRICULUM VITAE – NAME:

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: Assistant Research Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Illinois at Urbana-Champaign (UIUC)	B.S.	05/2000	Psychology
Emory University, Atlanta, GA	M.A.	05/2002	Cognition and Development
Emory University, Atlanta, GA	Ph.D.	08/2006	Cognition and Development
Center for Developmental Science at the University of North Carolina, Chapel Hill, NC	Postdoctoral Training	07/2010	Developmental Psychology
University of Missouri, Columbia	Postdoctoral Training	08/2012	Developmental Psychology

B. Employment History

2006-2008 Postdoctoral Fellow (T32 HD007376), Center for Developmental Science, University of North Carolina

2008-2009 Postdoctoral Fellow (F32HD058467 - 01A1), Center for Developmental Science, University of North Carolina

2010-2012 Postdoctoral Fellow, Dept. of Psychological Sciences, University of Missouri

2012-present Assistant Research Professor, Dept. of Psychological Sciences, University of Missouri

C. Research Support (Completed)

K99/R00 AA019974, NIH (NIAAA)

Funded: 2011-2015

Title: “A risk factor for elevated alcohol-use among females in young adulthood”

Role: Consultant (PI: Amelia Talley)

D. Publications (selected from 15 peer-reviewed articles, 6 peer-reviewed chapters)

* = refereed journals

Closely related publications:

1. *Fivush, R., & Walker, E. (2005). Memories of positive and negative emotional events. *Applied Cognitive Psychology, 19*, 51-66.

2. *Marin, K.A., Fivush, R., & Duke, M.P. (2006). Family narrative interaction and children's sense of self. *Family Process, 45*, 39-54.
3. Marin, K.A., & Fivush, R. (2008). Family narratives, self, and gender in early adolescence. *Journal of Early Adolescence, 28*, 153-176.
4. *Marin, K.A., & Fivush, R. (2008). Positive effects of talking about the negative: Family narratives of negative experiences and preadolescents' perceived competence. *Journal of Research on Adolescence, 18*, 573-593.
5. *Fivush, R., Marin, K.A., McWilliams, K., (2009). Family reminiscing style: Parent gender and emotional focus in relation to child well-being. *Journal of Cognition and Development, 10*, 210-235.

Other selected publications:

1. Fivush, R., & Duke, M.P. (2008). Self in time: Subjective perspective and intergenerational history. In F. Sani (Ed.), *Continuity and self*. (pp. 131-143). New York, NY: Psychology Press.
2. ., Fivush, R., Zaman, W., Lepore, C.E., Merchant, S., & Duke, M.P. (2009). Narrative interaction in family dinnertime conversations. *Merrill-Palmer Quarterly, 55*, 488-515.
3. * & Fivush, R. (2010). Personal narratives, well-being, and gender in adolescence. *Cognitive Development, 25*, 368-379.
4. Fivush, R., , & Marin, K. (2010). Patterns of family narrative co-construction in relation to adolescent identity and well-being. In K.C. McLean & M. Pasupathi (Eds.), *Narrative development in adolescence* (pp. 45-63). Springer, Boston, MA.
5. *Fivush, R., & Zaman, W. (2011.). Personal and intergenerational narratives in relation to adolescents' well-being. *New Directions for Child and Adolescent Development: The Development of Autobiographical Reasoning in Adolescence and Beyond, 131*, 45-57.
6. *Fivush, R., ., Zaman, W., & Grapin, S. (2012). Gender differences in adolescents' autobiographical narratives. *Journal of Cognition and Development, 13*, 295-319.
7. *Waters, T.E.A., , Marin, K.A., & Fivush, R. (2013). Null's the word: A comparison of memory quality for intensely negative and positive events. *Memory, 21*, 633-645.
8. *Lukowski, A.F, Valentovitch, V., & Slonecker, E.M. (2017). Sleep quality and the subjective experience of autobiographical memory: Differential associations by memory valence and temporality. *Applied Cognitive Psychology, 31*, 604-614.
9. *Hancock, D.W., Talley, A.E., , Iserman, M.D., & Ireland, M. (2018). Sexual orientation self-concept ambiguity and alcohol use disorder symptomology: The roles of motivated psychological distancing and drinking to cope. *Journal of Studies on Alcohol and Drugs, 79*, 96-101.
10. *Shaffer, V.A., Focella, E.S., Horstman, H., & Saffran, L. (2019). Encouraging perspective taking: Using narrative writing to induce empathy for others engaging in negative health behaviors. *PLOS ONE, 14*(10).

3. CURRENT AND PENDING INTERNAL AND EXTERNAL SUPPORT

PI:

A. Research Council Support from the past 5 years

1. University of Missouri Research Council Grant

Title: *“The Cognitive Architecture of Infant Attachment”*

Goal: This study will examine the nature of infant Internal Working Models of attachment as reflected in their expectations of caregiver responsiveness and preference for (non)responsive caregivers.

Award Period: Due to COVID-19 pandemic, the start date for this project has been postponed. If the current proposal is funded, this project will start after the current project according to Research Council guidelines. *Given that the award period has not begun, there are no products in relation to this award, yet.*

Award Amount: \$10,000.

These funds do not overlap with current project.

B. Other Internal Support – Three sources

1. University of Missouri Dr. Richard Wallace Faculty Incentive Grant

Title: *“Mothers’ Neurocognitive and Neuroaffective Responding to Infant Distress”*

Goal: This study examines links between mothers’ attachment representations, neural responding to infant emotional cues, and infant socioemotional adjustment.

Award Period: 9/1/2018 – 8/31/2020

Award Amount: \$4,000.

These funds do not overlap with current project.

2. University of Missouri ASH Scholars Award

Title: *“Close Relationships”*

Goal: Funding provided by the University of Missouri Honors College and Office of Undergraduate Research to integrate undergraduate students from diverse backgrounds into faculty mentored research teams. Students are currently working on an on-going collaborative research project examining physiological mechanisms of close relationships (friendships; parent-child relationships).

Award Period: 9/1/2017 – 8/31/2021

Award Amount: \$22,000

These funds do not overlap with current project.

3. Department of Psychology Miscellaneous Funds

Description: Funds provided to all tenure-track faculty members to support normal office and lab functioning (e.g., funds for data ports, copying, printing, etc.)

Amount: \$1,471.

These funds will be used to supplement requested funds for transcription and coding supplies detailed in the budget justification.

C. External Support – Two sources; one pending.

Current

1. NIMH F31 HD097079-01A1

Title: *“Considering the Role of Vagal Tone in Adolescents’ Behaviors within Friendships”*

Goal: This study examines autonomic physiological (RSA, SCL) co-regulation among friend dyads in the context of problem talk as a mechanism by which (un)supportive friendship processes impact adolescent mental health.

Role: Faculty Co-Sponsor

Award Period: 3/1/2019 – 2/28/2022

Award Amount (Direct Costs): \$102,723.

These funds do not overlap with current project.

2. National Science Foundation (Project #00069886)

Title: *“Neural Responding to Infant Distress Cues over the Transition to Motherhood”* Goal: This study examines change in mothers’ neurocognitive and neuroaffective responding to infant distress over the transition to motherhood.

Award Period: 9/15/2020 – 9/14/2025

Award Amount (Total): \$800,00

These funds will not overlap with the current project.

3. NIH R01

Title: *“Neural Mechanisms of the Influence of Maternal Psychological Risk on Mother and Infant Adjustment”*

Goal: This study would examine the role of mothers’ attachment insecurity and depressive symptoms in impacting their neural adjustment to parenting.

Month and year submitted: July 2020

Proposed Award Period: 9/1/2021 – 8/31/2026

Award Amount Requested (Total): \$3,889,850

If awarded, these funds will not overlap with the current project.

A. Research Council Support from the past 5 years - none

B. Other Internal Support – none

C. External Support – none

4. BUDGET REQUEST AND JUSTIFICATION

Transcription Services (via Rev.com)	\$4,200.00
Undergraduate Student Research Assistant (2)	\$4,536.00
Graduate Student Research Assistant	\$1,200.00
Transcription and Coding Supplies	\$64.00

Total \$10,000.00

Data collection for this project was feasible due to the generous provision of funds to the PI from the University of Missouri Department of Psychological Sciences. Funds were only provided to cover the cost of participant payment. Importantly, the only additional cost associated with this project involves the transcription and coding of narrative data, for which funds from the Research Council are requested as detailed below.

Transcription Services

The parent-child conversations have already been collected and require transcription. Rev.com is a well-known, reputable transcription service that allows for secure uploading of audio files and, in return, produces highly accurate verbatim transcripts of conversations *within 12 hours*. Co-I Bohanek has used this service and attests to the quality of the transcriptions. This service allows the present study to move forward quickly, as transcription time is significantly less than if it were completed by research assistants in PI's lab (typically, 1 week/transcript). Timely transcription is necessary to meet the research team's goal of timely dissemination of findings and publishing findings in the special issue of *Child Development* on the impact of the pandemic on children. Rev.com charges \$1.25/minute for each audio file. There are 56 families who completed the parent-child conversation portion of the study. Each mother-child and father-child conversation is approximately 30 minutes in length, respectively. Thus, the total amount requested for transcription services is \$4,200.00 (\$1.25/minute x 30 minutes x 112 conversations [56 mother-child, 56 father-child conversations]).

Undergraduate Research Assistants (URAs)

Parent-child conversation data will be reduced first as they will be used in the planned manuscript submission for the Special Issue in *Child Development*. Although transcripts from Rev.com are highly accurate, URAs are needed to upload the audio files, retrieve the transcripts and download them onto secure laboratory servers, and to double-check them for accuracy. To ensure timely transcription of parent-child conversations to allow adequate time for coding, two URAs are needed, one to oversee transcription of mother-child conversations and father-child conversations, respectively. Students will work approximately 5 hours/week for one month on transcription.

URAs will also be trained and aid in qualitative coding of narratives. One URA will code mother-child narratives and the other URA will code father-child narratives. Training will occur while parent-child conversations are being transcribed and will require approximately 5 hours/week. URAs will code all parent-child narratives in collaboration with Co-I Bohanek. Narrative coding will require 10 hours/week of coding for each URA.

Beginning in Spring 2021, mother narratives and father narratives in which parents separately wrote about their biggest challenge with the pandemic, most positive experience with the pandemic, and hopes for their family in the future will be coded. These data will be used in separate manuscripts examining the role of parent coping on buffering the negative impacts of COVID-19 stress on parent adjustment. In collaboration with Co-I Bohanek, one URA will code mother narratives and one URA will code father narratives. Coding will require 10 hrs/week/URA.

Given the novelty of pandemic, it is likely that parents and children have developed pandemic-specific coping strategies not yet identified or reflected in standard coding procedures. Thus, after coding narrative data using standard procedures, the research team will have working knowledge of potential pandemic-specific coping strategies that emerged within the narratives. The Summer will be used to develop a coding scheme to capture these coping strategies and during the Fall, parent-child narratives, mother narratives, and father narratives will be coded for these coping strategies. It is anticipated that 5 hrs/week/URA will be required for scale development and coding all narratives.

Importantly, the proposed transcription and coding can be completed remotely via VPN access to data files and Zoom coding meetings. URAs will be paid $\$9.45/\text{hr} \times 10 \text{ hrs/week} \times 2 \text{ RAs} \times 12 \text{ weeks}$ (end of Nov.-Feb. with anticipated holiday breaks) = \$2,268. URAs will be paid $\$9.45/\text{hr} \times 5 \text{ hrs/week} \times 2 \text{ RAs} \times 24 \text{ weeks}$ (Mar-Oct with anticipated summer breaks) = \$2,268. Total: $\$2,268 + \$2,268 = \$4,536$

Graduate Student Research Assistant

The graduate student research assistant has been trained by Co-I in one of the complex qualitative coding schemes that will be used to quantify and reduce the narrative data. This is a separate coding system from the one that the URAs will be using. In contrast to the instance-based coding system (e.g., identification of specific emotion words) that Co-I Bohanek has trained URAs on, the coding system Nanxi is trained in is *exhaustive*, or *proposition-based* (e.g., each subject/verb proposition in the entire conversation is separated out and coded into one of many categories, and both the *content* of the conversation and the *process* by which family members engage with each other are taken into account). Nanxi has undergone a year-long training by Co-I Bohanek in this system to become a reliable coder. Thus, their established reliability and past working relationship will enhance the quality and speed of the coding in the present study. It is anticipated that coding will require 10 hrs/week for 1 month for parent-child narratives and 10 hrs/week for 1 month for mother and father individual narratives ($\$15/\text{hour} \times 10 \text{ hrs} \times 8 \text{ weeks} = \$1,200$). Nanxi's involvement in this project will advance her career goals of becoming a tenure-track assistant professor at a university. Specifically, her involvement in this project will result in co-authorship on several anticipated manuscripts and conference presentations that are closely aligned with her research interest. Moreover, Nanxi's continued involvement in coding narrative data will enhance her coding skills in protocols that are central to her program of research. Further coding experience will benefit her as she launches her independent career and conducts her own research. This coding can be completed remotely via VPN data access and Zoom coding meetings.

Transcription and Coding Supplies

Supplies are requested to aid with transcription (i.e., headphones) and coding (e.g., colored pens, file folders, paper) in the amount of \$64.00.