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The Role of Maltreatment in the Development of Emotion Regulation

DISSERTATION

submitted in partial satisfaction of the requirements  
for the degree of

DOCTOR OF PHILOSOPHY

in Psychology and Social Behavior

by

Helen Masland Milojevich

Dissertation Committee:  
Professor Jodi Quas, Chair  
Professor Linda Levine  
Assistant Professor Angela Lukowski

2016



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## CURRICULUM VITAE

**Helen Masland Milojevich**

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Department of Psychology and Social Behavior  
University of California, Irvine  
4201 Social and Behavioral Sciences Gateway  
Irvine, CA 92697-7085

Email: helen.milojevich@uci.edu  
Phone: 925-286-7568 (c)  
949-824-9577 (w)

---

### EDUCATION

- University of California, Irvine** 2016  
Doctor of Philosophy: Psychology and Social Behavior, Specializations in  
Developmental Psychology and Quantitative Methods  
Advisors: Drs. Jodi Quas and Angela Lukowski
- University of California, Irvine** 2012  
Masters of Arts in Social Ecology  
Advisor: Dr. Angela Lukowski
- University of California, Davis** 2009  
Bachelor of Science with Honors in Human Development

### FELLOWSHIPS AND AWARDS

- Graduate Fellow 2015-2016  
Distinguished Fellows Program  
Mentor: Hon. Maria Hernandez, Presiding Judge of Orange County Juvenile  
Courts  
Center for Psychology and Law, University of California, Irvine
- U.S. Department of Health and Human Services Fellowship for Doctoral 2014-2016  
Candidates and Faculty for Research in Child Maltreatment  
“Risk and Resiliency in Maltreated Children and Maltreating Parents: Multiple  
Perspectives, Approaches, and Outcomes” (\$195,653 total; Milojevich: \$60,000)
- Dean’s Dissertation Writing Fellowship 2015  
School of Social Ecology  
University of California, Irvine (\$11,268.34)
- Graduate Student Mentoring Award 2015  
School of Social Ecology  
University of California, Irvine (\$400)



Outstanding Paper Presentation Associated Graduate Student Symposium “The Role of Maltreatment in Adolescents’ Development of Emotional Competence” University of California, Irvine (\$200)	2015
Dissertation Award APA Division 37-Section on Child Maltreatment (\$400)	2014
Psychology and Social Behavior Mentoring Award University of California, Irvine	2013
Psychology and Social Behavior Summer Research Fellowship University of California, Irvine (\$3,000)	2012
National Science Foundation Graduate Fellowship Honorable Mention	2012
Psychology and Social Behavior Summer Research Fellowship University of California, Irvine (\$3,000)	2011
Social Ecology Merit Fellowship University of California, Irvine (\$33,805.02)	2011
Human Development Departmental Citation for Academic Excellence University of California, Davis	2009

### **PEER-REVIEWED PUBLICATIONS**

- Milojevich, H. M., & Lukowski, A. F. (in press). Sleep and psychological functioning in college students with healthy sleep habits. *PLOS ONE*.
- Milojevich, H. M., & Quas, J. A. (in press). Parental attachment and children’s memory for attachment-relevant stories. *Applied Developmental Science*. DOI: 10.1080/10888691.2016.1140577
- Lukowski, A. F., & Milojevich, H. M. (in press). Examining recall memory in infancy and early childhood using the elicited imitation paradigm. *Journal of Visualized Experiments*. DOI: 10.3791/53347
- Milojevich, H. M., & Lukowski, A. F. (2015). Recall memory in children with Down syndrome and typically developing peers matched on developmental age. *Journal of Intellectual Disability Research, 60*, 89-100. DOI: 10.1111/jir.12242
- Lukowski, A. F., & Milojevich, H. M. (2015). Relations between nighttime sleep quality and temperament in young adults: Differential contributions of nighttime sleep duration and

sleep disruptions. *Behavioral Sleep Medicine*, 13, 217-230. DOI: 10.1080/15402002.2013.855214

Lukowski, A. F., Phung, J. N., & Milojevich, H. M. (2015). Language facilitates event memory in early childhood: Child comprehension, adult-provided linguistic support, and delayed recall at 16 months. *Memory*, 23, 848-863. DOI: 10.1080/09658211.2014.931436

Phung, J. N., Milojevich, H. M., & Lukowski, A. F. (2014). Adult language use and child comprehension abilities: Examining effects of encoding and generalization across cues at 20 months. *Infant Behavior and Development*, 37, 465-479. DOI: 10.1016/j.infbeh.2014.05.005

Lukowski, A. F., & Milojevich, H. M. (2013). Sleeping like a baby: Examining relations between habitual infant sleep, recall memory, and generalization across cues at 10 months. *Infant Behavior and Development*, 36, 369-376. DOI: 10.1016/j.infbeh.2013.02.001  
\*Paper featured on dugdug.com.

Klemfuss, J. Z., Milojevich, H. M., Yim, I. S., Rush, E. B., & Quas, J. A. (2013). Stress at encoding, context at retrieval, and children's narrative content. *Journal of Experimental Child Psychology*, 113, 693-706. DOI: 10.1016/j.jecp.2013.07.009

#### **MANUSCRIPTS UNDER REVIEW**

Milojevich, H. M., Quas, J. A., & Adams, B. L. (under review). Quality of sibling relationships in maltreated youth residing in out-of-home care.

Lukowski, A. F., & Milojevich, H. M. (revise and resubmit). Sleep problems and temperament in typically developing children and children with Down syndrome.

#### **MANUSCRIPTS IN PREPARATION**

Milojevich, H. M., & Lukowski, A. F. (in prep). Relations between early intervention and memory in young children with Down syndrome.

Milojevich, H. M., & Quas, J. A. (in prep). The role of maltreatment on the development of emotion regulation.

Milojevich, H. M., Zinger, J. F., Shiek-Gamble, C., & Lukowski, A. F. (in prep). Examining moderators of recall memory in infancy and early childhood: A meta-analysis.

Valentovich, V., Milojevich, H. M., & Lukowski, A. F. (in prep). The role of siblings on recall memory: Comparing children with Down syndrome to typically developing children.

Lukowski, A. F., & Milojevich, H. M. (in prep). Examining the effects of general sleep quality on recall memory and cognitive interference in young adults.

Lukowski, A. F., & Milojevich, H. M. (in prep). Sleep and memory in toddlers with Down syndrome.

Lukowski, A. F., Goldberg, W., Milojevich, H. M., & Phung, J. N. (in prep). Examining the relation between sleep and temperament in 10-month-old infants.

### OTHER PUBLICATIONS

Lukowski, A. F. & Milojevich, H. M. (in press). Developmental research methods. *NOBA Project*. <http://nobaproject.com/browse-content>

Milojevich, H. M., Quas, J. A., & Yano, J. Z. (2016). Children's participation in legal proceedings: Immediate and long-term consequences. In M. K. Miller & B. H. Bornstein (Eds.), *Advances in Psychology and Law* (Vol. 1). New York: Springer.

Goodman, G., Goldfarb, D., Quas, J. A., Narr, R., Milojevich, H. M., & Cordon, I. (2016). Memory development, emotion regulation, and trauma-related psychopathology. In D. Cicchetti (Ed.). *Developmental Psychopathology* (Vol. 3). New York: Wiley.

### PRESENTATIONS

\*Torres, T. K., Milojevich, H. M., & Lukowski, A. F. (May, 2016). *Sleep problems and recall memory in typically developing children and children with Down syndrome*. Poster to be presented at the Twenty-eighth Association for Psychological Science Annual Convention, Chicago, IL.

Milojevich, H. M. & Quas, J. A. (2016, March). *The role of maltreatment on adolescents' development of emotional competence*. Poster presented at the 2016 Society for Research on Adolescence Biennial Meeting, Baltimore, MD.

\*Torres, T. K., Milojevich, H. M., & Lukowski, A. F. (2016, March). *The role of siblings on recall memory: Comparing children with Down syndrome to typically developing children*. Poster presented at the Ninety-sixth Annual Convention of the Western Psychological Association, Las Vegas, NV.

\*Rush, Q., Le, G., Milojevich, H. M., Dickerson, K. L., & Quas, J. A. (2016, March). *Altering hostile emotional biases in maltreated youth*. Poster presented at the Ninety-sixth Annual Convention of the Western Psychological Association, Las Vegas, NV.

Milojevich, H. M., & Quas, J. A. (2015, October). *Cycle of violence: Relations among maltreatment, emotional competence, and aggression*. Poster presented at the Inaugural UC Conference on Social Science and Law, Irvine, CA.

Lukowski, A. F., & Milojevich, H. M. (2015, October). *Participation in social skills therapy and recall memory in children with Down syndrome*. Poster presented at the 2015 Cognitive

Development Society Biennial Meeting, Columbus, OH.

Lukowski, A. F., & Milojevich, H. M. (2015, October). *Recall memory in children with Down syndrome and typically developing peers matched on developmental age*. Poster presented at the 2015 Cognitive Development Society Biennial Meeting, Columbus, OH.

\*Cathcart, E., Milojevich, H. M., & Quas, J. A. (2015, April). *Stability across placement types: The role of behavioral disposition*. Poster presented at the Ninety-fifth Annual Convention of the Western Psychological Association, Las Vegas, NV.

\*Roberts, D. K., Milojevich, H. M., & Quas, J. A. (2015, April). *Sibling relationships and resiliency among maltreated youth*. Poster presented at the Ninety-fifth Annual Convention of the Western Psychological Association, Las Vegas, NV.

\*Crane, M., Bhalerao, R., Cathcart, E., Milojevich, H. M., & Quas, J. A. (2015, April). *Aggression and emotion regulation in maltreated vs. non-maltreated children*. Poster presented at the Ninety-fifth Annual Convention of the Western Psychological Association, Las Vegas, NV.

Milojevich, H. M. (2015, March). *The role of maltreatment in adolescents' development of emotional competence*. Paper presented at the Associated Graduate Students Symposium, University of California Irvine, Irvine, CA.

Milojevich, H. M., & Lukowski, A. F. (2015, February). *Examining sleep-temperament relations in children with Down syndrome relative to typically developing controls*. Poster presented at the 2015 Society for Personality and Social Psychology Annual Convention, Long Beach, CA.

Milojevich, H. M., & Quas, J. A. (2014, August). *Maltreatment, delinquency, and crime: Socio-emotional risks*. Paper presented at the Annual APA Convention, Washington, D.C.

Milojevich, H. M., & Lukowski, A. F. (2013, October). *Examining recall memory in young adults: The importance of habitual sleep quality*. Poster presented at the Eighth Biennial Meeting of the Cognitive Development Society, Memphis, TN.

Phung, J. N., Milojevich, H. M., & Lukowski, A. F. (2013, May). *Child language comprehension and linguistic support provided in an elicited imitation task: Effects on encoding and generalization?* Paper presented at the Eighth Annual SoCal Conference on Cognitive and Language Development, Irvine, CA.

Milojevich, H. M., Phung, J. N., & Lukowski, A. F. (2013, April). *Examining correlates of parent psychological functioning: Contributions of parent and child sleep habits*. Poster presented at the 2013 Biennial Meeting of the Society for Research in Child Development, Seattle, WA.

Phung, J. N., Milojevich, H. M., & Lukowski, A. F. (2013, April). *Child language*

*comprehension and linguistic support in an elicited imitation Task: Effects on encoding and generalization.* Poster presented at the 2013 Biennial Meeting of the Society for Research in Child Development, Seattle, WA.

Klemfuss, J. Z., Milojevich, H. M., Yim, I. S., Rush, E., & Quas, J. A. (2013, April). *Stress, interviewer support, and children's narrative content.* Paper presented at the 2013 Biennial Meeting of the Society for Research in Child Development, Seattle, WA.

Milojevich, H. M., & Lukowski, A. F. (2012, June). *Brief report: The relation between recall memory and parent-report of sleep habits in 10-month-old infants.* Poster presented at the International Conference of Infant Studies, Minneapolis, MN.

Milojevich, H. M., Phung, J., & Lukowski, A. F. (2012, June). *Examining the relation between parent-report of sleep and parent-report of temperament in 10-month-olds.* Poster presented at the International Conference of Infant Studies, Minneapolis, MN.

Milojevich, H. M., & Lukowski, A. F. (2012, April). *Examining factors that affect recall memory in infancy and early childhood: A meta-analytic review of performance in the elicited imitation procedure.* Paper presented at the Seventh Annual SoCal Conference on Cognitive and Language Development.

Phung, J. N., Milojevich, H. M., & Lukowski, A. F. (2012, April). *Examining relations between language and recall memory in infancy.* Poster presented at the SoCal Conference on Cognitive and Language Development, San Diego, CA.

\*Garber, W., Milojevich, H. M., & Lukowski, A. F. (2011, November). *Exploring the relations between sleep and temperament in 10-month-olds.* Poster presented at the 2011 Annual Biomedical Research Conference for Minority Students, St. Louis, MO.

\*denotes undergraduate or post-baccalaureate collaborator

### **Invited Presentations**

Milojevich, H. M. (2016, April). *Recall memory in children with Down syndrome: The role of early interventions.* Presented at the Developmental Psychology Colloquium, Department of Psychology and Social Behavior, University of California Irvine, Irvine, CA.

Milojevich, H. M. & Lukowski, A. F. (2016, February). *Recall memory in children with Down syndrome: Implications for parents.* Presented at the Down Syndrome Association of Orange County, Costa Mesa, CA.

Quas, J. A., Skeem, J., Milojevich, H. M., Dickerson, K.L., & Bell, O. (2015, October). *Children in the dependency system: Trajectories of risk versus resilience.* Presented at the Inaugural UC Conference on Social Science and Law, Irvine, CA.

Milojevich, H. M., & Lukowski, A. F. (2015, July). *Recall memory in children with Down syndrome.* Presented at the Neuroscience of Memory, Aging, and Dementia Laboratory,

University of California, Irvine, Irvine, CA.

Milojevich, H. M. (2015, July). *The role of maltreatment on adolescents' development of emotional competence*. Presented at the 2015 Children's Bureau Annual Combined Discretionary Grantees Meeting, Washington, D.C.

Milojevich, H. M. (2015, May). *The use of school resource officers in Orange County: A preliminary report*. Presented at the Center for Psychology and Law Student Showcase, Irvine, CA.

Milojevich, H. M., & Quas, J. A. (2014, November). *Aggression, hostile attributions, and maltreated children's social relationships*. Presented at Orangewood Children and Family Center, Orange, CA.

Quas, J. A., & Milojevich, H. M. (2014, October). *Maltreatment, delinquency and crime: Developmental risks and trajectories*. Presented at the 80<sup>th</sup> Semi-Annual Meeting of the Association for Criminal Justice Research, Irvine, CA.

Milojevich, H. M. (2014, April). *Memory and generalization abilities in children*. Presented at the Down Syndrome Association of Orange County, Costa Mesa, CA.

Milojevich, H. M., & Quas, J. A. (2013, August). *Standardized assessments for use with at-risk youth*. Presented at Orangewood Children and Family Center, Orange, CA.

Milojevich, H. M. (2013, March). *Memory development in children: The role of family-related factors*. Presented at the Developmental Psychology Colloquium, Department of Psychology and Social Behavior, University of California Irvine, Irvine, CA.

Milojevich, H. M., & Lukowski, A. F. (2012, May). *Examining factors that affect recall memory in infancy and early childhood: A meta-analytic review of performance in the elicited imitation procedure*. Presented at the Department of Psychology and Social Behavior Colloquium Series, University of California Irvine, Irvine, CA.

## RESEARCH AND PROFESSIONAL EXPERIENCE

**Project Director, Child Development Laboratory, UC Irvine** 2011-2016  
Currently serve as a Project Director in Dr. Jodi Quas's Child Development Laboratory. Responsibilities include organizing and managing multiple research projects, collecting and analyzing data, and writing manuscripts for publication.

**Graduate Student Researcher, Memory and Development Laboratory, UC Irvine** 2010-2016  
Currently serve as Graduate Student Researcher in Dr. Angela Lukowski's Memory and Development Laboratory. Responsibilities include hiring, coordinating, and supervising of undergraduate research assistants on

multiple research projects, as well as collecting and analyzing data and writing manuscripts for publication.

- Mental Health Counselor, Seneca Center, San Leandro, CA** 2009-2010  
Provided in-class counseling for maltreated and severely emotionally disturbed (SED) children at a private school. Provided care for maltreated and SED children in group homes. Conducted several forms of observations, including Antecedent-Behavior-Consequence observations to inform research on treatment outcomes.
- Research Assistant, Developmental Research Laboratory, UC Davis** 2008-2009  
Recruited and scheduled participants, tested participants, and assisted with data entry on several research projects lead by Dr. Gail Goodman that examined a variety of child-related issues, including children's experiences in the juvenile system and child eye-witness testimony.
- Research Assistant, Child and Adolescent Abuse Research Center, UC Davis** 2008-2009  
Assisted with several studies by entering data, maintaining and updating client charts, performing clerical duties, and conducting preliminary data analysis. Also, coded Parent-Child Interaction Therapy (PCIT) sessions using both emotional attachment criteria and the Dyadic Parent-Child Interaction Coding System.

### TEACHING EXPERIENCE

- Guest Lecturer, University of California, Irvine** 2016  
"Relationships and Social Development" (May, 2016). Lecture presented in the course *Infant Development*.
- Guest Lecturer, University of California, Irvine** 2013  
"Prenatal Development" (April, 2013). Lecture presented in the course *Child Development*.
- Graduate Teaching Assistant, University of California, Irvine** 2011-2016  
Courses: Child Therapies, Child Development, Lifespan Development, Social Ecology Field Studies, Psychology Fundamentals, Naturalistic Field Studies
- Mentor, Undergraduate Research Opportunity Program** 2010-2016  
Supervised undergraduate honors theses, and mentored students in the design, analysis, and write up of research studies for honors program.

### SERVICE AND LEADERSHIP

- Developmental-Health Faculty Search Committee- Graduate Member** 2015-2016  
Graduate member of the Psychology and Social Behavior Department's

search committee for a Developmental-Health Psychology faculty member. Reviewed approximately 70 job applications. Discussed and evaluated job applicants with faculty members of the search committee. Hosted prospective job applicants and organized job talks.

- Graduate Student Newsletter Representative, APA Division 37** 2015  
Assisted in the creation of the APA Division 37 (Child Maltreatment) newsletter. Interviewed and wrote newsletter articles about past section awardees. Conducted literature searches to identify all recent publications by current section members. Worked with Section Newsletter Editor to create recent publication list to be featured in Section Newsletter.
- Student Reviewer for Society for Research in Child Development Biennial Meeting** 2014  
Reviewed submitted abstracts for poster and symposium presentations for the 2015 Society for Research in Child Development (SRCD) Biennial Meeting. Provided feedback and evaluations to SRCD about each submission. Worked in collaboration with advisor, Dr. Angela Lukowski.
- Graduate Student Recruitment Coordinator** 2014  
Assisted in the recruitment of incoming graduate students for the Psychology and Social Behavior Department at UC Irvine. Organized Interview Weekend for potential graduate students, including creating interview schedules, arranging housing and transportation, and hosting social events and meet-and-greet activities.
- Mentor for the Department of Psychology and Social Behavior** 2011-2013  
Assigned to mentor incoming students in the doctoral program and provide guidance on issues pertaining to progression toward the doctoral degree.

### **PROFESSIONAL AFFILIATIONS**

American Psychological Association  
Section on Child Maltreatment  
Society for Research in Child Development  
Society for Research on Adolescence  
Cognitive Development Society  
Graduate Women in Science



## **ABSTRACT OF THE DISSERTATION**

The Role of Maltreatment on the Development of Emotion Regulation

By

Helen Masland Milojevich

Doctor of Philosophy in Psychology and Social Behavior

University of California, Irvine, 2016

Professor Jodi Quas, Chair

The costs of child maltreatment are staggering with deleterious effects on children emerging in every developmental domain, including cognitive, psychological, and social functioning. The mechanisms underlying these effects are complex and multifaceted, being shaped not only by characteristics within children, but also by their experiences during and after exposure to maltreatment. One mechanism that has the potential to interact with children's experiences to affect a range of outcomes is emotion regulation. Emotion regulation is associated with psychological well-being, behavioral functioning, delinquency, and physical health in nonmaltreated samples as well as samples of young maltreated children. Given that adolescence is a unique time, cognitively and emotionally, it may be a time when maltreatment experiences play a critical role in shaping emotion regulation. In the present study two samples of children, ages 6-17, one with a substantiated history of maltreatment ( $N = 262$ ) and one without ( $N = 133$ ), completed a battery of measures, including those that tap emotion regulation and behavioral functioning. Information about the children's family, maltreatment, and background were collected via case files. Overall, maltreated children reported using more disengagement and antisocial regulation strategies relative to comparison children who reported more primary

control strategies. Moreover, differences between the two groups in emotion regulation increased with age. Finally, the use of disengagement strategies predicted poorer behavioral functioning, particularly during adolescence. Findings have the potential to inform the treatment and intervention of maltreated children by determining the precise ways in which they differ from comparison children in their ability to regulate emotions, and how these emotion processes influence their functioning across age.

## INTRODUCTION

The ability to successfully and adaptively regulate emotions is essential to virtually every life outcome, including mental and physical health, educational attainment, work achievement, and marital satisfaction, among others (Carstensen, Gottman, & Levenson, 1995; Eisenberg, Sadovsky, & Spinrad, 2005; Gross & Muñoz, 1995; Salovey, Rothman, Detweiler, & Steward, 2000). Ample evidence indicates that exposure to child maltreatment increases the risks for deficits in emotion regulation (Camras, Sachs-Alter, & Ribordy, 1996; During & McMahon, 1991; Kim & Cicchetti, 2010; Main & George, 1985; Maughan & Cicchetti, 2002; Pears & Fisher, 2005; Robison et al., 2009). For instance, maltreated children tend to become frustrated easily, are prone to angry outbursts, and are known to disengage from emotional situations (Shields & Cicchetti, 1998). To date, however, little is known about how maltreated children's emotion regulation compares to demographically-similar children without substantiated maltreatment exposure, particularly across the transition to adolescence, despite indications that adolescence is a unique time, biologically, behaviorally, and physically (Dahl & Gunnar, 2009; Forbes et al., 2010) and a time when emotion regulation may be critical for successful navigation of this period. Moreover, few studies have examined the relation between emotion regulation and behavioral functioning across this developmental time in maltreated children. The present study sought to address gaps in the literature by (1) examining emotion regulation abilities in maltreated children and adolescents and comparing their functioning to that of demographically-similar comparison youth, and (2) investigating the links between emotion regulation strategies and behavioral adjustment in maltreated and comparison children.

## Defining Emotion Regulation

Emotion regulation (ER) refers broadly to the “internal and external processes involved in initiating, maintaining, and modulating the occurrence, intensity, and expression of emotions” (Thompson, 1994, p. 27). Theoretical models of ER borrow heavily from other literatures, particularly models of stress and coping (e.g., Gross, 1998; Lazarus & Folkman, 1984; Selye, 1956). *Coping* is the “cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of that person” (Lazarus & Folkman, 1984, p. 141). Classically, two domains of coping strategies have been identified: *problem-focused coping*, which aims to resolve a problem, and *emotion-focused coping*, which aims to alleviate or reduce the experience of negative emotion resulting from the problem (Compas, Malcane, & Fondacaro, 1988). Developmental models of coping have diverged some from this classic dichotomy and have delineated between primary and secondary control coping (Rothbaum, Weisz, & Snyder, 1982). *Primary control coping* refers to efforts to change the stressful environment; while *secondary control coping* is defined as efforts to maximize one’s fit to the current environment (Rudolph, Hammen, & Burge, 1995). Regardless of the model, though, there is an emphasis on a basic distinction between efforts to change the person, environment, or the person-environment fit (e.g., problem-focused and primary control coping) and efforts to regulate or manage the negative emotions resulting from a stressful situations (e.g., emotion-focused and secondary control coping).

A more difficult task than simply describing models of coping is to explain how ER fits in with these models. Some existing models of ER have categorized regulation in terms of strategies that map onto dimensions described in the coping literature, distinguishing between primary versus secondary and engagement versus disengagement ER (Connor-Smith et al., 2000;

Joseph & Newman, 2010). Yet, this sort of mapping does not take into account subtle differences between ER and coping. Specifically, coping as conceptualized both classically and in developmental literatures includes non-emotional actions taken to achieve non-emotional goals (Scheier, Weintraub, & Carver, 1986), as well as actions taken to regulate emotions. In contrast, ER specifically concerns processes that may or may not tax an individual's resources (Gross, 1998). Furthermore, while coping occurs during negative or stressful experiences, both positive and negative emotions may be regulated, and emotion expression and experience may be targeted via that regulation (Gross & Thompson, 2007). Thus, existing theory and research on coping informs the present study and is useful to generate some hypotheses. It is critical to consider directly ER and how it is employed by maltreated and comparison children when they are faced with emotionally-salient experiences.

### **Development of Emotion Regulation**

The development of ER begins early in life and progresses rapidly across childhood and adolescence. In early childhood, for instance, ER largely takes the form of extrinsic, and often involuntary, behavioral strategies aimed at reducing negative sensations and increasing positive feelings (Zeman et al., 2006). For example, common strategies employed by infants include gaze aversion, thumb sucking, and making sounds to signal distress, self-soothing, or eliciting a response from another. Across childhood, there is an increased ability to use display rules as children gain the ability to intentionally separate their emotional reaction from their facial, vocal, and/or behavioral responses (Zeman & Shipman, 1996). Children also increasingly rely on primary and secondary control strategies (e.g., attentional redirection, cognitive reframing) in place of disengagement strategies (e.g., denial, escape) when confronted with a challenge or situation requiring the control of emotional expression. During the transition into adolescence,

the use of more effortful ER strategies, such as cognitive reappraisal, becomes more common (Lazarus & Folkman, 1984), and adolescents gain a more sophisticated understanding of when, how, and with whom to control the different facets of emotions (Thompson & Goodman, 2009). For instance, compared to children, adolescents are more likely to report altering their responses to emotional situations depending on whether they are interacting with their peers or parents (Zeman & Shipman, 1997).

Of note, there are important changes across the transition to adolescence not only in ER, but also in the frequency of the types of events and challenges that require regulation of emotions (Ge et al., 1994; Larson & Ham, 1993; Rudolph & Hammen, 1999). In particular, adolescence marks a time of tremendous changes in parent-child relationships, school structure, and peer dynamics (Akos & Galassi, 2004; Brown & Larson, 2009; Smetana, 1995, Steinberg, 2001). In terms of parent-child relationships, adolescence is a time of growing challenges and conflicts with parents (Fosco & Grych, 2010; Paikoff & Brooks-Gunn, 1991; Smetana, 1995; Smetana, Yau, Restrepo, & Braeges, 1991; Steinberg, 2001; Van Doorn, Branje, & Meeus, 2011). Parent-child conflict increases not only in frequency, but also in levels of anger, yelling, and withdrawal (Van Doorn, Branje, & Meeus, 2011). Adolescents typically change schools (middle school and then high school), which often introduces new peer groups, more stressful and challenging courses, and an overall more complex academic and social environments (Akos & Galassi, 2004; Barber & Olsen, 2004; Benner & Graham, 2009; Frey, Ruchkin, Martin, & Schwab-Stone, 2009). Perhaps the most salient change in adolescence is the growing importance of peer relationships, including the formation (and dissolution) of romantic relationships and greater concern for peer opinion (Brown & Larson, 2009; Shulman & Scharf, 2000). As a final note, as children transition through adolescence they may be more likely to experience adverse life

events such the death of a loved one or loss of a parent due to divorce or incarceration (Sacks, Murphey, & Moore, 2014). Thus, across development, the types of events that children report as being extremely negative, and therefore requiring them to rely heavily on ER, perhaps change both in form and intensity. They transition from often less intense experiences focused on the wants of the children (e.g., conflicts with siblings and not being allowed to watch TV after school) to more emotionally intense and challenging events focused on interpersonal relationships and social functioning (e.g., verbal and physical altercations with peers and parents, romantic breakups, and loss of loved ones).

### **Maltreatment and Emotion Regulation**

ER is shaped by numerous factors beyond development, with wide within-age individual differences being common across childhood and into adolescence. A particularly salient influence on ER is parents and the family context more broadly, which are the most robust and direct ways in which maltreatment likely affects ER. For one, children constantly observe their parents' emotional displays and interactions and how parents express and manage their emotions (Denham et al., 1997; Parke, 1994) and may learn about ER directly. For instance, children of parents who display wide ranges of emotional expressions are more likely to learn about a variety of emotional responses and the appropriateness of specific emotions across multiple contexts (Denham et al., 1997). Whereas children of parents who mask expression or only display certain emotions (particularly negative ones) may have children who struggle to appropriately regulate their emotions (Eisenberg et al., 2001). Parents may also directly influence children's ER by parents actively teaching their children about emotions and regulation strategies (Sheffield Morris et al., 2011). For example, warm, supportive parents help their children verbally label emotions, empathize with or validate their children's emotions, and actively help

their children problem-solve when dealing with negative emotions (Gottman et al., 1997). In contrast, punitive parental reactions include yelling, name calling, overt expressions of anger, and physical threats and aggression (Chang, Schwartz, Dodge, & McBride-Chang, 2003). Finally, the emotional climate of the family more broadly may impact ER in children. Climate includes such factors as the attachment relationship between parents and their children (Gilliom et al., 2002), parenting styles (i.e., responsive and warm versus harsh and dismissing), family expressiveness (Maughan, Cicchetti, Toth, & Rogosch, 2007), and the emotional quality of the marital relationship (Davies & Cummings, 1994; Gottman & Katz, 1989). Climates that are unpredictable and negative are linked to children displaying high levels of emotional reactivity to challenges and poor regulation across a range of situations (Eisenberg, Cumberland, & Spinrad, 1998).

Maltreatment is a tremendous aberration in the parent-child relationship. As a result, children's observation of parents, parents' parenting practices and behavior, and the general emotional climate of their family may be severely altered. These, in turn, may have considerable implications for the children's ER. Maltreating parents, for instance, are more likely to display ineffective regulation strategies when faced with their own conflict (Shipman et al., 2007), and maltreated children tend to witness more angry exchanges between parents (Appel & Holden, 1998; McKibben, De Vos, & Newberger, 1989; Sternberg et al., 1993). More directly, maltreating parents often fail to teach their children effective ways to reduce distress and feelings of anger and sadness, and instead ridicule, belittle, or neglect the children in emotional situations (Thompson, 2001). Such could easily lead maltreated children to demonstrate deficits in ER such as becoming frustrated easily and being prone to angry outbursts (Shields & Cicchetti, 1998). This may be especially evident in early adolescence when social interactions, especially



with peers, become salient. Finally, the family climate in maltreated homes is marked by high levels of conflict, negative affect, harsh parenting styles, insecure attachment relationship behaviors, and hostility (Cicchetti & Rogosch, 2001; Maughan & Cicchetti, 2002; Sheffield Morris et al., 2007). All of this, together, likely, affects children's emerging capacities with regard to ER.

Beyond general differences in emotion regulatory capabilities, exposure to child maltreatment may also have implications for the specific types of ER strategies that children use when confronted with emotionally-charged situations (Shipman et al., 2007; Shipman & Zeman, 2001). For example, given that maltreating parents display ineffective regulation strategies and often fail to teach their children about constructive ways to manage their emotions, maltreated children may struggle to utilize certain ER strategies, such as problem-solving (Shipman et al., 2007). Successfully utilizing these types of primary control strategies may require a certain level of emotional understanding as well as perceptions of control over the situation (Calkins, 1994; Folkman, 1984). Maltreated children may, first, lack the emotional understanding to be able to problem-solve when confronted with negative emotional situations and, second, may have limited volitional control over the situation eliciting the negative emotions. Such could be the case when maltreated children attempt to regulate with their negative emotions during their maltreatment and other associated challenges (e.g., removal from home and placement in foster care). During these experiences there may be little that children can do to control the situation, thereby potentially making primary control strategies unlikely (and unsuccessful).

Relatedly, due to maltreated children's lack of emotional competence (i.e., ability to successfully and appropriately understand, express, and regulate emotions) and their lack of control over many of the situations in which they may need to regulate their emotions, maltreated

children may more frequently utilize certain disengagement and secondary control ER strategies, such as suppression and avoidance. Both of these strategies have been linked to poorer behavioral and mental health functioning in community samples of children and adults, and are thus often considered more maladaptive than other ER strategies (particularly primary control, reappraisal, and acceptance) (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Gross & John, 2003; Silk, Steinberg, & Sheffield Morris, 2003). In addition, relative to nonmaltreated children, maltreated children may also engage in more antisocial ER strategies, such as self-harm, alcohol or illegal substances, or verbal or physical altercations, as a means of decreasing their negative emotions or in an attempt, albeit perhaps misguided, to change their emotional experience. Adolescence may be a time of particular vulnerability in regards to utilizing antisocial strategies, as even in nonmaltreated samples adolescence is marked with an increase in these behaviors (Laursen & Collins, 1994; Laye-Gindhu & Schonert-Reichl, 2005; Young et al., 2002). Therefore, in a high-risk sample such as those exposed to maltreatment, there may be a peak in the use of antisocial ER strategies during adolescence.

In addition to the potential differences in ER capabilities and strategy use, maltreated children may also differ from nonmaltreated children in the types and intensity of events that demand ER; the most obvious difference being maltreated children's exposure to the maltreatment itself and its sequelae. Child maltreatment experiences vary widely and can include exposure to neglect (e.g., when a parent fails to provide a minimum degree of care in meeting a child's needs) and/or abuse (e.g., physical, sexual, emotional) (Barnett, Manley, & Cicchetti, 1993). Not surprisingly, such experiences are extremely stressful and psychologically intense, requiring children to regulate a range of emotions, including strong feelings of sadness and anger (Gilbert et al., 2009; Spaccarelli, 1994). Beyond experiences tied to maltreatment, maltreated

children are more likely than nonmaltreated children to be exposed to certain more “normative” psychologically intense emotional events, such as crime, domestic and community violence, poverty, and loss of loved ones (Costello, Erkanli, Fairbank, & Angold, 2002; Cox, Kotch, & Everson, 2003; Finkelhor, Turner, Ormrod, & Hamby, 2009; Lynch & Cicchetti, 1998; Parke & Clarke-Stewart, 2003). Each one of these challenges potentially elicits strong emotional reactions from maltreated children, thereby requiring children to continually regulate their emotions.

Relatedly, in situations of severe and persistent abuse, legal and social service interventions may occur once child maltreatment is discovered and substantiated. For example, children may be removed from their caregivers and placed in out-of-home settings. Upon removal, children are confronted with a variety of challenges and stressors, including separation from loved ones, coping with a new home (one that is often temporary and transient), involvement in the legal system, and being cared for by unfamiliar adults (Folman, 1998; Howes & Segal, 1993; Melinder, Baugerud, Ovenstad, & Goodman, 2013; Quas, Wallin, Horwitz, Davis, & Lyon, 2009). Again, each of these stressors may require children to regulate a range of emotions, including potentially intense feelings of sadness and anger.

### **Emotion Regulation and Behavioral Adjustment**

Ample evidence suggests that, regardless of maltreatment exposure, poor ER (e.g., increased use of disengagement or antisocial regulation strategies) is associated with increases in behavioral problems (Cicchetti, Ackerman, & Izard, 1995; Connor-Smith et al., 2000; Silk et al., 2003). For example, increased use of disengagement ER strategies in children and adolescents is linked to greater depressive symptomatology and problem behaviors (Silk et al., 2003). Moreover, certain secondary control strategies, namely suppression, have been consistently linked to poorer behavioral and mental health outcomes, although these studies have largely been

conducted in adult samples (Betts, Gullone, & Allen, 2009; Gross & John, 2003). In contrast, many primary (e.g., problem-solving, seeking primary social support) and secondary control strategies (e.g., acceptance and reappraisal) are linked to decreases in behavior problems across childhood and adolescence (Garnefski, Rieffe, Jellesma, Terwogt, & Kraaij, 2007; Rafnsson, Johnson, & Windle, 2006; Rudolph & Heller, 1997; Windle & Windle, 1996) and, thus, may be associated with numerous decreases in negative outcomes.

Somewhat surprisingly given the vast body of literature examining ER and behavioral functioning in normative developmental populations, far fewer studies have investigated these links in those with child maltreatment histories, especially investigations from a developmental perspective. This lack of research is perhaps even more surprising in light of countless studies demonstrating the links between child maltreatment and poor behavioral functioning both during childhood and across the lifespan (Burns, Fischer, Jackson, & Harding, 2012; Cicchetti & Rogosch, 2001; Cutajar et al., 2010; Fergusson, Boden, & Horwood, 2008; Kim-Cohen et al., 2006; MacMillan & Munn, 2001; Repetti, Taylor, & Seeman, 2002; Trickett, Noll, & Putnam, 2011; Widom, 1999; Wise, Zierler, Krieger, & Harlow, 2001). In young maltreated children, there has been some research linking ER deficits to poor behavioral and psychological functioning (Kim-Spoon, Cicchetti, & Rogosch, 2013; Maughan & Cicchetti, 2002; Pollak, Cicchetti, Hornung, & Reed, 2000; Siener & Kerns, 2012). For example, poor ER predicts internalizing (e.g., depression and anxiety) and externalizing (e.g., aggression) problems over time in maltreated children (Alink et al., 2009; Kim-Spoon et al., 2013; Romens & Pollak, 2012; Shields & Cicchetti, 1998). To date, however, these studies have paid little attention to later in development, especially across the transition to adolescence. This lack of empirical research is problematic in light of the grave consequences (e.g., school expulsion, juvenile delinquency,

sexual exploitation, substance abuse) that may stem from the association between ER deficits and poor behavioral functioning in maltreated adolescents (Cooper, Shaver, & Collins, 1998; Dierkhising, Geiger, Hurst, Panlilio, & Schelbe, 2015; Ford, Chapman, Mack, & Pearson, 2006).

## **Summary**

Considerable evidence exists concerning the development of ER during childhood, and concerning the influence of parents and the family setting on this development. To date, far less is known about ER across development, particularly across the transition to adolescence, and particularly in children who have been exposed to severe maltreatment. Given the social and regulatory demands of adolescence, there is reason to believe that limitations in ER, especially those linked to maltreatment, may play a key role in behavioral functioning and well-being during this transition.

## **Present Study**

The overarching goals of the present study were to (1) examine ER across development in maltreated children and compare their functioning to that of demographically-similar comparison children, and (2) to investigate the links between ER and behavioral functioning, particularly in maltreated children. Two samples of children, ranging in age from 6 to 17 years, one with a substantiated history of maltreatment and one without, completed a battery of measures including those that assessed ER and behavioral functioning. Information about the children's family, maltreatment, and background was collected via Social Service case files.

## **Hypotheses**

Two sets of hypotheses were tested. Project 1 concerned developmental and experiential changes in ER among maltreated and comparison children (H1-H4). Project 2 concerned the links between ER and behavioral functioning, particularly in maltreated children (H5-H6).

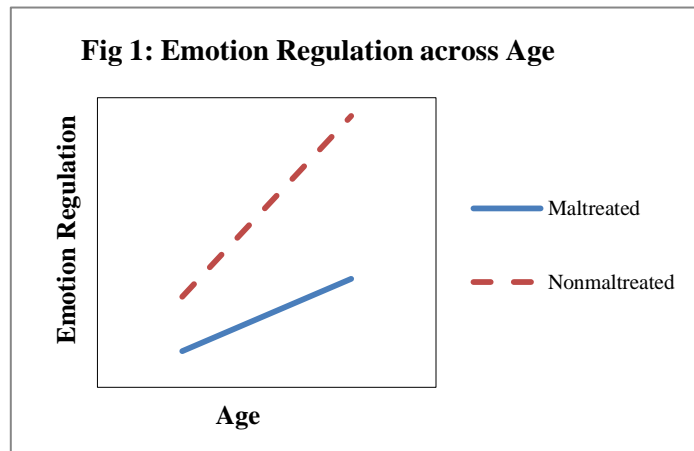
Because these hypotheses correspond to separate analyses addressing distinct research questions, they are described here together, but reviewed again in separate results sections.

1) Maltreated and comparison children were expected to differ in the types of events in which they reported experiencing strong feelings of sadness and anger. Maltreated children were anticipated to report more events related to violence, abuse, and removal relative to the comparison children (Costello, Erkanli, Fairbank, & Angold, 2002; Cox, Kotch, & Everson, 2003; Finkelhor, Turner, Ormrod, & Hamby, 2009; Lynch & Cicchetti, 1998; Parke & Clarke-Stewart, 2003); conversely the comparison children were expected to report more events related to not getting their wants met relative to the maltreated children.

2) Maltreated children were also predicted to report more psychologically intense events relative to the comparison children. Child maltreatment experiences can include exposure to neglect and/or abuse, involvement in the legal system, placement in out-of-home care, and separation from loved ones (Barnett, Manley, & Cicchetti, 1993). Not surprisingly, such experiences are likely more stressful and psychologically intense (Gilbert et al., 2009; Spaccarelli, 1994) than the more normative daily stressors faced by comparison children.

3) The two groups of children were expected to differ in the types of ER strategies that they reported using during negative emotional events (Shipman et al., 2007; Shipman & Zeman, 2001). Specifically, maltreated children were expected to utilize in more disengagement and antisocial strategies to regulate emotions, suggestive of poorer ER, while comparison children were predicted to report using more primary control strategies to regulate emotions.

4) With age, both maltreated and comparison children were expected to report more effective and more cognitive regulation strategies, including problem-solving, reappraisal, and acceptance (Figure 1). However, increases in ER effectiveness were predicted to be greater for comparison relative to maltreated children, leading to larger differences across age in ER. Previous research indicates that ER develops considerably during



adolescence (Calkins & Bell, 1999; Zeman & Shipman, 1997); however, due to a history of aberrant parent-child interactions in maltreated adolescents, their developmental advances are expected to be reduced.

5) Positive behavioral functioning was expected to decrease with age, especially in maltreated children. Specifically, both internalizing (e.g., emotion problems) and externalizing (e.g., aggression) problems were anticipated to increase with age. As mentioned, adolescence marks a time of tremendous changes in emotional, cognitive, and biological functioning (Dahl & Gunnar, 2009; Forbes et al., 2010). These changes are associated with increases in conflict (both with parents and peers), exposure to and use of alcohol and illegal substances, and mental health problems in normative adolescent samples (Nelson, Leibenluft, McClure, & Pine, 2005). Thus, it is likely that these associations would be particularly robust in a high-risk population, such as maltreated children as they transition to adolescence.

6) Poorer ER (e.g., more avoidance and antisocial ER strategies) was expected to be associated with poorer behavioral functioning (e.g., more emotional problems and aggression) in

both maltreated and comparison children. Conversely, better ER (e.g., more problem-solving, reappraisal) was anticipated to be related to better behavioral functioning (e.g., less emotional problems and aggression) (Cicchetti, Ackerman, & Izard, 1995; Connor-Smith et al., 2000; Silk et al., 2003). An ER by age interaction was also anticipated, such that with age, poor ER would increase, and relations to decreased behavioral functioning would become more robust.

## **CHAPTER 1: Method**

### **Participants**

The present study examined emotional and behavioral development in 262 6- to 17-year-old ( $M = 12.99 \pm .26$ ) maltreated and 133 6- to 17-year-old ( $M = 12.19 \pm .21$ ) comparison children (113 and 68 boys, respectively). Of the 395 participants, 19% identified as Caucasian, 46% as Hispanic non-Caucasian, 22% as multiethnic, and 8% as other (5% did not report on race or ethnicity).

Maltreated children were recruited from a local residential care facility for children removed from caregivers following maltreatment exposure. All cases had been substantiated by Child Protective Services (CPS) and deemed severe enough to warrant removal. The comparison children were recruited from a number of sources, including flyers and advertisements posted at local community centers, schools, churches, and other relevant community locations, and word of mouth. For the comparison children, children must have been residing with at least one parent at the time of participation.

Additional eligibility criteria included the children were (1) fluent in English, and (2) free from serious chronic medical conditions that could compromise their ability to understand and complete the study measures. Nine maltreated children elected not to complete the emotion



regulation narrative task, and thus were excluded from the present study (no comparison children elected not to complete the narrative task).

## **Materials and Procedure**

The study was approved by the University of California, Irvine, Institutional Review Board, the Orange County Presiding Juvenile Judge, and the Orange County Social Service Agency. Sessions were conducted in a quiet, private location at the residential facility for the maltreated children and either at home or in a university laboratory testing space for the comparison children. Maltreated children were approached for an interview between 3-5 days of their arrival at the facility.

First, a researcher explained the study and children provided their written assent (written consent was obtained from the parents/guardians of the comparison children). The researcher then administered a battery of measures that assessed children's ER and behavioral functioning. All instructions and questions were read aloud to the children. Cue cards containing the response options were also provided.

Children completed a demographic questionnaire regarding their age, ethnicity, language spoken in their home, grade in school, and general health. The researcher then administered the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997), a well-validated measure designed specifically for at-risk populations to evaluate children's emotional, behavioral, and prosocial functioning. The questionnaire includes 25 items about children's thoughts, feelings, and behaviors. Children are asked to rate often ("never", "sometimes", or "always") each item has applied to them over the past six months. Subscales include emotional problems, conduct problems, hyperactivity, peer problems, and prosocial behaviors. These are combined (prosocial reversed) to create a total problem score. The SDQ has high internal consistency and test-retest

reliability (Goodman, 2001) and has been used around the globe with at-risk developmental populations (Leist & Dadds, 2009; Whitted, Delavega, & Lennon-Dearing, 2012).

Next, the Child Aggression Questionnaire, a well-established modification of the Reactive-Proactive Aggression Questionnaire (Raine et al., 2006), was administered. This measure assesses reactive (e.g., "Gotten angry when others threatened you") and pro-active (e.g., "Yelled at others so that they would do things for you") aggression. Children respond "never", "sometimes", or "always" to 23 questions. The Child Aggression Questionnaire has strong reliability and validity (Raine et al., 2006) and has been used previously with at-risk developmental populations (Ford, Fraleigh, & Connor, 2009; Gordis, Feres, Olezeski, Rabkin, & Trickett, 2010).

Finally, the researcher administered the emotion regulation narrative task. The researcher started by asking the child if s/he ever experienced certain emotions (i.e., "Have you ever been REALLY sad?"). If the child indicated that s/he could not remember a time in which s/he was sad or angry, the researcher provided a standardized example to help him/her identify a relevant past event. After the child recalled a past event, the researcher asked pre-scripted follow-up questions (e.g., "Can you tell me anymore about that time?"). The researcher asked the child to report anything s/he did to make his/her feelings go way; again the researcher asked pre-scripted follow-up questions to encourage the child to provide as many details as possible.

At the end of the session, children were thanked and debriefed. Children in the comparison group received \$25 in thanks for their participation; the residential facility requested that the maltreated children not receive any compensation for their participation. Social Service case records for the maltreated children were collected to code for maltreatment history.

## Coding

**Emotion Regulation Narratives.** Children's narratives were coded by two trained advanced doctoral students. Coders first established reliability (over 95% agreement on all variables) on approximately 15% of the narratives. The remaining 85% of the narratives were then randomly assigned to one of the two coders, such that 70% were coded by the primary doctoral student (Milojevich) and 30% were coded by the other doctoral student.

Children's narratives were coded, first, for the type of event reported for the sad and mad prompts. Categories of event type were created based on the children's responses and included loss, abuse and/or removal, friends or family in trouble, not getting basic needs met, interpersonal conflict, being hurt or sick, not getting wants met, multiple events, or other (see Appendix for example events). In some cases children did not report on an event (e.g., referred to experiencing sadness or anger, but did not provide a description of an event in which that emotion was elicited). These cases were coded as "none reported". Overall, 33 (15.9%) of the maltreated and 15 (14.6%) comparison children did not report on a sad event. Forty-four (21.2%) of maltreated and 22 (21.4%) of comparison children did not report on a mad event. For cases coded as "not an event" we further sought to characterize the reason behind not reporting an event. Reasons included that the child indicated that s/he never experienced the emotion, could not recall a specific event, or did not want to discuss the event with the researcher.

In addition to type of event, each event was also coded for *physical severity*, *psychological intensity*, *specificity*, and *elaboration*. The *physical severity* code referred to the level of physical harm or damage caused by the event. There were three possible codes: (0) Minor event, (1) Moderately severe, and (2) Severe. The aim of the physical severity code was to assess how much the event was physically threatening to the child's physical integrity. For

example, if the child reported minimal direct threat to the self (e.g., “having nightmares,” or “watching sad movies with friends,”), the event was given a low physical severity rating. If the child reported severe direct threat to his/her physical integrity during the event (e.g., “being shot at in my neighborhood,” or “I got hit by a car and had to go to the hospital,”), the event was given a high physical severity rating (Taylor & Weems, 2009).

*Psychological intensity* was based on the event involving fear, helplessness, or horror. For example, if the event reported by the child implied minimal distress (e.g., fear, helplessness) response (e.g., “getting an insect bite,” or “losing a game,”) the event was given a low psychological intensity rating. If the event reported by the child implied an intense distress response (i.e., the child had limited control during the event; the event was likely to be associated with a strong emotional response; e.g., “I saw someone get raped,” or “when I was in the car and another car crashed into us,”), the event was given a high intensity rating (Taylor & Weems, 2009). High intensity responses could also include high fear, feelings of hopelessness, or other indications of extreme confusion, anxiety, or lack of control (e.g., “When the police took me away from my parents”).

*Specificity* referred to a dichotomous code of whether the child reported one specific event from the past (1- Yes) or reported a generalized memory (0- No). An example of a specific event was “my dad died”; while an example of a generalized event was “when kids pick on me or bully me”. *Elaboration* referred to whether the child provided an elaborative narrative. A code of 0 (No) was given to single word/sentence responses. A code of 1 (Yes) was given when the child provided multiple sentences with new event details in each sentence about the emotion-inducing event.

Next, children's narratives were coded for specific ER strategies, based on coding schemes used by Connor-Smith et al. (2000) and Davis et al. (2010). Each ER strategy the child reported was classified as primary control, secondary control, or disengagement. The main distinction among the strategies being a distinction between efforts to change the person, environment, or the person-environment fit (i.e., *primary control*) and efforts to regulate or manage the negative emotions resulting from the stressful situation (i.e., *secondary control*). Strategies in which the child attempted to escape or avoid the situation were considered *disengagement*. Within the broader categories of secondary control and disengagement, ER strategies were further categorized into specific types. Specific types were based partly on the broader ER and coping literature (Compas et al., 1988; Connor-Smith et al., 2000; Davis et al., 2010; Rothbaum et al., 1982; Rudolph et al., 1995) and partly on children's responses. Types of secondary control strategies included positive thinking, acceptance, reappraisal, secondary social support, suppression, distraction, meta-cognitive, crying, venting, conflict, and self-soothing techniques (Connor-Smith et al., 2000; Morling & Evered, 2006). Disengagement strategies included avoidance, sleep, general disengagement, or "doing nothing" (Connor-Smith et al., 2000; Sheppes, Scheibe, Suri, & Gross, 2011; Silk et al., 2003). Additionally, each ER strategy received an *antisocial* code: 1 (Yes) if the strategies included extreme antisocial acts, such as violence, self-harm, substance use, or suicide attempts, or 0 (No) if no clear indication of antisocial tendencies was reported.

**Maltreatment Case Files.** Maltreated children's Social Service case files were coded for maltreatment type via three trained undergraduate coders. Coders first established reliability (over 85% agreement on all variables) on approximately 10% of the case files. The remaining

95% of these case files were then randomly assigned to one of the three coders, such that approximately 32% were coded by each coder.

Coders identified the type of maltreatment experienced (i.e., physical abuse, sexual abuse, neglect) as specified by the California Penal Code 300 WIC subsections for the current case. The Maltreatment Classification Scheme (MCS; Barnett, Manley, & Cicchetti, 1993) was used to categorize the maltreatment type. In the present study, 24% of the sample had experienced more than one type, thus children were assigned to maltreatment type based on their most severe, substantiated experience: 16% of the children had a history of physical abuse (regardless of neglect), 8% had a history of sexual abuse (regardless of neglect), 61% experienced neglect, and 5% experienced all three maltreatment types (10% of the sample was missing a Social Service record and therefore could not be classified by maltreatment type).

## **CHAPTER 2: Results of Project 1**

Of primary interest in this project was to examine ER in maltreated children and compare their functioning to that of demographically-similar comparison children, including changes in ER across development. Comparisons were made between maltreated and comparison children across age in the types of emotional events reported and the types of ER strategies utilized during these events. It was expected that (1) maltreated children would report more events related to violence, abuse, and removal relative to the comparison children; conversely the comparison children were expected to report more events related to not getting their wants met relative to the maltreated children; (2) maltreated children would report more psychologically intense events relative to the comparison children; (3) maltreated children would engage in more disengagement and antisocial strategies to regulate emotions, while comparison children would report using more primary control strategies to regulate emotions, and (4) with age, both

maltreated and comparison children were expected to report more effective and more cognitive regulation strategies, including problem-solving, reappraisal, and acceptance; however, increases in ER effectiveness were predicted to be greater for comparison relative to maltreated children, leading to larger differences across age in ER.

**Preliminary Analyses.** Potential confounds and covariates were examined. Analyses compared demographics across maltreatment status (maltreated v. comparison). First, no differences between the maltreated and comparison children emerged for age,  $F(1, 393) 1.48$ , *n.s.* Second, neither gender nor ethnicity (coded as 1 = Hispanic, 0 = non-Hispanic) were associated with maltreatment status,  $\chi^2(1) < 2.70$ , *n.s.* Lastly, significant differences in native language were found,  $\chi^2(1) = 27.03$ ,  $p < .001$ . Comparison children were more likely to indicate Spanish as their native language (27%) relative to maltreated children (8%). Demographic information is presented by maltreatment status in Table 1.

**Table 1** Demographics by Maltreatment Status

	Comparison	Maltreated	Statistic	<i>p</i> -value
Age (years)	12.23 ± 3.30	12.65 ± 3.25	$F = 1.48$	.224
Gender (% girls)	49%	57%	$\chi^2 = 2.27$	.136
Ethnicity (% Hispanic)	53%	42%	$\chi^2 = 2.70$	.105
Native Language (% Spanish)	27%	8%	$\chi^2 = 27.03$	< .001

**Types of Emotional Events.** One of the hypotheses of Project 1 was that maltreated and comparison children would differ in the types of emotional events that they reported. As can be seen in Table 2, both groups of children reported largely similar emotional events, with the exception that, of the maltreated children, 69 (28%) reported abuse or removal as their sad event

(**sad maltreated disclosure**) and 25 (10%) reported abuse or removal as their mad event (**mad maltreated disclosure**). The remaining maltreated children (**sad and mad maltreated nondisclosure**) described various other emotional topics; the most frequent topics were loss [ $N = 66$  (37%) and 6 (3%) for sad and mad events, respectively] and interpersonal conflict [ $N = 24$  (13%) and 102 (46%)]. For the comparison children (**comparison**), the most frequent events reported were loss [ $N = 44$  (33%) and 3 (2%) for sad and mad events, respectively], interpersonal conflict [ $N = 26$  (20%) and 58 (44%)], or not getting wants met [ $N = 9$  (7%) and 27 (20%)].

**Table 2** Frequency Distribution of Sad and Mad Events by Maltreatment Status

	Comparison		Maltreated	
	Sad Events	Mad Events	Sad Events	Mad Events
Loss	44	3	66	6
Removal or Abuse	0	0	69	25
Interpersonal Conflict	19	45	13	85
Friends/Family in Trouble	8	0	11	6
Hurt or Sick	6	3	5	4
Not Getting Wants Met	9	27	4	18
Violence Exposure	1	0	3	1
Multiple Events or Other	19	9	26	21
No Event Reported	20	33	41	64
Total	126	120	238	230

Follow-up chi-square analyses by group (maltreated nondisclosure v. comparison) indicated that the only difference in type of event occurred for events related to having wants met for mad events, such that the comparison children reported “not getting their wants met” as their mad event significantly more often than did the maltreated nondisclosure children,  $\chi^2(1) =$



11.17,  $p = .001$ . Comparisons across all three disclosure groups for age, gender, and maltreatment type did not approach significance ( $ps > .18$ ).

*Reasons for not Reporting Event.* Chi-square analyses examined potential differences between group (maltreated nondisclosure v comparison) for reasons for not reporting a sad or mad event (all children in the maltreated disclosure group reported abuse and/or removal as their event therefore they were excluded from these analyses). No group differences emerged. Across both groups, most children who did not report an event indicated that they did so because they never felt the emotion in question [ $N = 33$  (54%) and 68 (72%) for sad and mad events, respectively]. Two 2 (group: maltreated nondisclosure or comparison) one-way analyses of variance (ANOVAs) were conducted separately for sad and mad events on age. Overall, age was unrelated to children's reasons for not reporting an event,  $F_s(1, 59) < .82, n.s.$

*Characteristics of Emotional Events.* To examine differences by disclosure group in characteristics of the emotional events reported, 3 (group: maltreated disclosure, maltreated nondisclosure, or comparison) one-way analyses of covariance (ANCOVAs) were conducted separately on physical severity and psychological intensity. Age was added as a covariate. A custom model was used to allow for an examination of the age x group interaction.

First for sad events, no main effects or interactions emerged when examining physical severity. When examining psychological intensity, main effects of group and age emerged, but were further qualified by an age x group interaction,  $F(2, 314) = 9.18, p < .001$ . Follow-up analyses by group indicated that, for the maltreated nondisclosure and comparison groups, age was positively associated with psychological intensity,  $r_s > .32, ps \leq .001$ ; whereas, for the maltreated disclosure group, age was not associated with psychological intensity,  $r = -.10, n.s.$  Although this finding was probably driven by the disclosure group main effect, such that the

maltreated disclosure group reported events that were significantly more psychologically intense ( $M = 1.93$ ) than the events reported by the comparison group ( $M = .71$ ).

For mad events, no main effects or interactions emerged when examining physical severity. When examining psychological intensity, main effects of group and age emerged, but were further qualified by an age x group interaction,  $F(2, 278) = 3.59, p = .029$ . Follow-up analyses by group indicated that, for the maltreated nondisclosure and comparison groups, age was positively associated with psychological intensity,  $r_s > .21, p_s \leq .040$ ; whereas, for the maltreated disclosure group, age was not associated with psychological intensity (all children in the maltreated disclosure group reported high intensity events).

Finally, chi-square analyses examined whether events differed by group in specificity and elaboration. Overall, few differences by disclosure group emerged, with the exception that, for mad events, children in the maltreated disclosure group were more likely than children in the other two groups to report on a specific event,  $\chi^2(2) = 6.42, p = .040$ .

**Emotion Regulation Strategies.** The main goal of Project 1 was to examine whether maltreated and comparison children differed in the types of ER strategies they reported using when coping with emotionally negative events. To test this aim, first, the frequency of each ER strategy reported for sad and mad events was examined for differences across the three disclosure groups. Overall, the most commonly reported strategies were primary control, secondary social support, distraction, suppression, avoidance, and “nothing” (see Tables 3 and 4). Of the other reported strategies, several had very low base rates (i.e., less than 5% of the entire sample reported using these strategies across the two emotional events) and thus were excluded from further examination. These included positive thinking, reappraisal, acceptance, general disengagement, and meta-cognitive strategies. In terms of differences by disclosure

groups, for sad events, the three groups differed on primary control, suppression, distraction, sleep, and “doing nothing”. For mad events, there were no significant differences in strategy type once reappraisal, acceptance, and meta-cognitive strategies were excluded.

**Table 3** Frequency Distribution of ER Strategies for Sad Events by Disclosure Group

	Comparison	Maltreated Nondisclosure	Maltreated Disclosure	Statistic	<i>p</i> -value
Primary Control*	20	15	1	$\chi^2 = 11.64$	.003
Secondary Control					
Secondary Social Support	43	38	17	$\chi^2 = 5.10$	.078
Suppression*	24	13	5	$\chi^2 = 10.62$	.005
Positive Thinking	8	4	6	$\chi^2 = 3.60$	.165
Reappraisal	8	2	2	$\chi^2 = 5.75$	.056
Acceptance	2	4	1	$\chi^2 = .59$	.744
Meta-Cognitive	4	6	3	$\chi^2 = .11$	.948
Cried	7	12	6	$\chi^2 = .59$	.746
Venting	3	10	6	$\chi^2 = 3.44$	.179
Self-soothing	10	11	9	$\chi^2 = 1.39$	.500
Conflict	0	1	1	$\chi^2 = 1.84$	.399
Distraction*	44	50	15	$\chi^2 = 6.52$	.038
Disengagement					
General Disengagement*	6	2	0	$\chi^2 = 6.16$	.046
Avoidance	5	15	9	$\chi^2 = 4.67$	.097
Sleep*	3	4	10	$\chi^2 = 14.49$	.001
Nothing*	12	19	19	$\chi^2 = 9.62$	.008

**Table 4** Frequency Distribution of ER Strategies for Mad Events by Disclosure Group

	Comparison	Maltreated Nondisclosure	Maltreated Disclosure	Statistic	<i>p</i> -value
Primary Control	24	31	2	$\chi^2 = 3.39$	.183
Secondary Control					
Secondary Social Support	20	22	6	$\chi^2 = 2.80$	.247
Suppression	7	12	1	$\chi^2 = .41$	.817
Positive Thinking	5	2	2	$\chi^2 = 4.96$	.084
Reappraisal*	8	1	1	$\chi^2 = 10.03$	.007
Acceptance*	5	1	0	$\chi^2 = 6.38$	.041
Meta-Cognitive*	1	1	2	$\chi^2 = 8.64$	.013
Cried	3	5	1	$\chi^2 = 1.27$	.529
Venting	8	20	5	$\chi^2 = 3.04$	.219
Self-soothing	6	20	0	$\chi^2 = 2.81$	.055
Conflict	7	15	0	$\chi^2 = 1.99$	.371
Distraction	20	36	5	$\chi^2 = .23$	.893
Disengagement					
General Disengagement	4	4	0	$\chi^2 = 1.33$	.516
Avoidance	22	32	4	$\chi^2 = .52$	.773
Sleep	3	13	1	$\chi^2 = 3.01$	.222
Nothing	12	27	5	$\chi^2 = 1.48$	.477

Next, to further examine ER across development in maltreated and comparison children, binary logistic regressions were conducted to ascertain the effects of age, disclosure group (comparison children served as the reference group), and psychological intensity on the likelihood that children utilized certain ER strategies (Model 1). Interactions between age and disclosure group were also included (Model 2). To reduce the number of comparisons, only ER strategies in which the differences across the three disclosure groups were marginal ( $p \leq .10$ ) were examined as the dependent variable (see also Tables 3 and 4). These strategies were

primary control, secondary social support, suppression, self-soothing, distraction, and disengagement strategies (for disengagement all of the specific strategies were combined into one broad category since the patterns of differences across disclosure group were the same).

First, for sad events, when examining primary control strategies, Model 1 was statistically significant,  $\chi^2(4) = 38.54, p < .001$ . The model explained 22.6% (Nagelkerke  $R^2$ ) of the variance in the use of primary control strategies and correctly classified 88.6% of cases. Increasing psychological intensity was associated with a decreased likelihood of utilizing primary control strategies during sad events, after controlling for age and disclosure group. Model 2 was not significant,  $\chi^2(2) = 3.71, n.s.$

Next, for secondary social support, Model 2 was significant,  $\chi^2(2) = 9.85, p = .007$ . The model explained 7.5% (Nagelkerke  $R^2$ ) of the variance and correctly classified 70.7% of cases. A significant age by disclosure group interaction emerged between the comparison and maltreated disclosure groups. Specifically, follow-up analyses by group indicated that, for comparison children, those who reported using secondary social support tended to be older ( $M = 13.19$ ) than those who did not report using secondary social support ( $M = 11.87$ ). The maltreated disclosure group did not differ in secondary social support use by age.

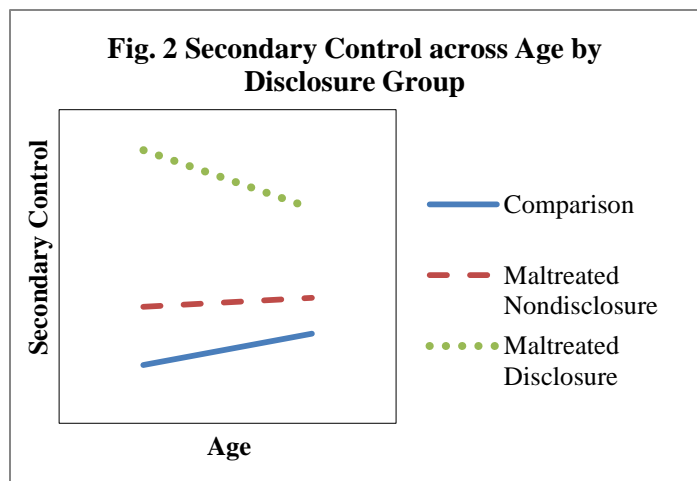
For suppression, Model 1 was statistically significant,  $\chi^2(4) = 12.43, p = .014$ , explained 7.1% (Nagelkerke  $R^2$ ) of the variance, and correctly classified 86.8% of cases. Comparison children were more likely to report using suppression than children in the maltreated nondisclosure group (OR = 5.38). Model 2 was not significant,  $\chi^2(2) = .84, n.s.$

For disengagement strategies, Model 1 was statistically significant,  $\chi^2(4) = 26.06, p < .001$ . The model explained 11.3% (Nagelkerke  $R^2$ ) of the variance in the use of disengagement and correctly classified 72.9% of cases. Comparison children were significantly less likely to

report using disengagement strategies than the maltreated disclosure and nondisclosure groups ( $OR = .38$  and  $.24$ , respectively). Model 2 was not significant,  $\chi^2(2) = .79$ ,  $n.s.$  For self-soothing and distraction strategies, neither model was significant.

Next, mad events were examined. For primary control strategies, Model 1 was statistically significant,  $\chi^2(3) = 11.13$ ,  $p = .011$ . The model explained 6.1% (Nagelkerke  $R^2$ ) of the variance and correctly classified 79.9% of cases. Increasing age was associated with a decreased likelihood of utilizing primary control strategies during mad events. Model 2 was not significant,  $\chi^2(1) = .07$ ,  $n.s.$  For distraction, only Model 2 was significant,  $\chi^2(2) = 9.58$ ,  $p = .008$ . The model explained 5.6% (Nagelkerke  $R^2$ ) of the variance in the use of distraction and correctly classified 78.8% of cases. A significant age by disclosure group interaction emerged between the comparison and maltreated nondisclosure groups. Specifically, follow-up analyses by group indicated that, for comparison children, those who reported using distraction tended to be older ( $M = 14.35$ ) than those who did not report using secondary social support ( $M = 12.37$ ). The maltreated nondisclosure group did not differ in distraction use by age. Neither model was significant for the remaining ER strategies (i.e., secondary social support, suppression, self-soothing, and disengagement).

Together, these results revealed that comparison children were more likely to use suppression and less likely to report using disengagement strategies relative to the maltreated children, particularly those in the maltreated



nondisclosure group. Regarding developmental differences, with age, comparison children

reported using more secondary control strategies, including secondary social support and distraction strategies. Conversely, strategy use did not differ with age for the two maltreated groups (Figure 2).

*Antisocial Emotion Regulation Strategies.* Additional analyses were conducted to determine if the three disclosure groups differed on the extent to which they reported using antisocial ER strategies to cope with their sad and mad feelings. For these analyses, we summed the number of antisocial strategies each child reported across both sad and mad events. Overall, few children reported using antisocial strategies. Two hundred and forty-one children (61.0%) across the three disclosure groups did not report using a single antisocial strategy, 22 (5.6%) reported one antisocial strategy, 13 (3.3%) reported two, and 5 reported three (1.3%), and additional 114 children (28.9%) did not report any ER strategies across either the sad or mad events or did not complete the task and thus were excluded from the subsequent analyses. Binary logistic regressions were conducted to ascertain the effects of age, disclosure group, and psychological intensity on the likelihood that children reported an antisocial ER strategy (Model 1). Interactions between age and disclosure group were also included (Model 2).

Overall, for sad events, Model 1 was statistically significant,  $\chi^2(4) = 43.88, p < .001$ . The model explained 31.1% (Nagelkerke  $R^2$ ) of the variance and correctly classified 92.4% of cases. Maltreated disclosure children were significantly more likely to report using antisocial strategies than children in the comparison group ( $OR = 3.35$ ). Increasing psychological intensity was also associated with an increased likelihood of utilizing antisocial strategies during sad events. Model 2 was not significant,  $\chi^2(2) = 2.73, n.s$ . For mad events, Model 1 was statistically significant,  $\chi^2(4) = 18.12, p = .001$ . The model explained 12.9% (Nagelkerke  $R^2$ ) of the variance and correctly classified 89.7% of cases. Age and psychological intensity were positively associated

with an increased likelihood of utilizing antisocial strategies during mad events, after controlling for disclosure group. Model 2 was not significant,  $\chi^2(2) = 2.96, n.s.$

### **CHAPTER 3: Discussion of Project 1**

The overarching goal of Project 1 was to examine differences between maltreated and comparison children in emotion regulation, including developmental changes across the transition to adolescence. It was expected that maltreated and comparison children would differ in the types of events in which they reported experiencing strong feelings of sadness and anger. The two groups of children were also predicted to differ in the types of ER strategies that they reported using during negative emotional events (Shipman et al., 2007; Shipman & Zeman, 2001), with maltreated children reporting more disengagement and antisocial strategies, and comparison children reporting more primary control strategies. Finally, with age, both maltreated and comparison children were expected to report more effective and more cognitive regulation strategies, including problem-solving, reappraisal, and acceptance. However, increases in ER effectiveness were predicted to be greater for comparison relative to maltreated children, leading to larger differences across age in ER.

#### **Characteristics of the Emotional Event**

The first hypothesis was supported. Maltreated and comparison children differed both in the types of emotional events that they reported and in the characteristics of those events, especially the psychological intensity of the events. Maltreated children reported more events related to abuse and removal relative to the comparison children, in keeping with previous literature (Costello, Erkanli, Fairbank, & Angold, 2002; Cox, Kotch, & Everson, 2003; Finkelhor, Turner, Ormrod, & Hamby, 2009; Lynch & Cicchetti, 1998; Parke & Clarke-Stewart, 2003). This finding, though, was somewhat emotion-specific in that approximately a third of the



maltreated children reported abuse or removal as their sad event, whereas only 10% of the sample reported abuse and removal as their mad event. Interestingly, comparisons in event type across the maltreated nondisclosure and the comparison groups revealed few differences, with the exception that the comparison children reported “not getting their wants met” as their mad event significantly more often than did the maltreated nondisclosure children. Previous research on adult survivors of child maltreatment have also noted few differences between maltreatment nondisclosure and comparison groups when reporting on events related to extreme feelings of distress (Bonanno, Noll, Putnam, O’Neill, & Trickett, 2003).

The second hypothesis was also supported, such that, although the maltreated and comparison children did not differ remarkably on the types of events that they reported (with the exception of abuse and removal), they did differ significantly on the psychological intensity of those events. More specifically, maltreated children reported events that were significantly more psychologically intense, even when reporting on events not directly related to abuse and its aftermath. Experiences of child maltreatment and removal can be extremely distressing and challenging, with children being confronted with a variety of stressors, including separation from loved ones, coping with a new home (one that is often temporary and transient), involvement in the legal system, and being cared for by unfamiliar adults (Folman, 1998; Howes & Segal, 1993; Melinder, Baugerud, Ovenstad, & Goodman, 2013; Quas, Wallin, Horwitz, Davis, & Lyon, 2009). However, in addition to these maltreatment-specific experiences, maltreated children are also more likely than comparison children to be exposed to other extreme emotional events, such as crime, domestic and community violence, poverty, parental incarceration, and loss of loved ones (Costello, Erkanli, Fairbank, & Angold, 2002; Cox, Kotch, & Everson, 2003; Finkelhor, Turner, Ormrod, & Hamby, 2009; Lynch & Cicchetti, 1998; Parke & Clarke-Stewart, 2003).

Thus, even when a maltreated child and a comparison child report on the same type of event (e.g., loss) the level of fear, helplessness, or distress experienced by the two children may vary widely. For example, in the present study, when a maltreated child referred to loss as their sad event, this was often in the context of the death of a parent, relative, or friend. When comparison children referred to loss, it often came in the form of the death of a pet. Both events may elicit feelings of distress or helplessness, but likely to differing degrees of intensity.

### **Emotion Regulation Strategies**

The types of emotional events and the psychological intensity of those events also have important implications for the use of ER strategies across the groups of children. Overall, the hypothesis that comparison children would report using more primary control strategies to regulate emotions, while maltreated children would engage in more disengagement and antisocial strategies was partially supported. First, when examining primary control strategies, logistic regressions revealed that the maltreated and comparison children did not differ in their use of primary control, after controlling for psychological intensity and age. In contrast, psychological intensity did predict the use of primary control, with increasing psychological intensity being associated with a decreased likelihood of utilizing primary control strategies during sad events. This effect may have been driven by the lack of control associated with high intensity events. Primary control strategies refer to efforts to change a stressful or emotion-inducing situation, such as problem-solving about or seeking out a parent or teacher to help resolve a situation (Rudolph, Hammen, & Burge, 1995). When the event or problem in question is largely out of a child's control, use of primary control may be both unlikely and, perhaps, unsuccessful. Thus, a reduced use of primary control strategies may be less related to maltreated children's poor emotional socialization by their parents (e.g., failure to display effective ER

strategies or directly teach about how to manage distress), and more to some underlying understanding in children that certain events are out of their control and therefore using primary control is not possible (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001).

In contrast, and in support of the hypothesis, the two maltreated groups reported using disengagement strategies, or attempts to distance oneself from the stressor or related feelings (Connor-Smith et al., 2000), more than the comparison groups. Given previous work that maltreating parents often fail to teach their children effective ways to reduce distress and feelings of anger and sadness, and instead tend to ridicule, belittle, or neglect their children in emotional situations (Thompson, 2001), maltreated children may, in turn, disengage from a situation when confronted with intense negative emotions. More specifically, especially during uncontrollable events such as abuse and removal, maltreated children may lack the ER abilities to successfully utilize secondary control strategies, such as reappraisal, self-soothing, or even suppression, and thus may rely on disengagement strategies, including doing nothing to regulate their emotions. Importantly, previous research has demonstrated links between disengagement strategies and poor emotional and behavioral functioning (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Kashdan, Barrios, Forsyth, & Steger, 2006; Silk et al., 2003; Southam-Gerow, & Kendall, 2002), suggesting that maltreated children's reliance on disengagement ER may place them at heightened risk for poor outcomes.

Although no specific hypotheses were proposed for secondary control strategies, results indicated important group differences, including for secondary social support, suppression, and distraction strategies. First, comparison children were significantly more likely to report using secondary social support than children in the maltreated disclosure group. However, this effect varied across age. Specifically, the use of secondary social strategies increased with age for the

comparison children, whereas age was unrelated to the use of secondary social support for the maltreated disclosure group. These results were perhaps not surprising in light of work indicating that maltreated children often delay disclosing abuse for extended periods of time (London, Bruck, Ceci, & Shuman, 2005), suggesting that maltreated children may not utilize secondary social support when coping with their emotions surrounding their abuse. Moreover, the maltreated children in the present study were residing in an emergency care facility, thus they were largely separated both from their parents and their typical social support network. As a result, the maltreated children who reported removal as their emotional event possibly did not utilize secondary social support following removal due to their isolation from their support network (Bass, Shields, & Behrman, 2004).

On a related note, the comparison children reported using suppression during sad events significantly more than either of the maltreated groups. This finding was somewhat surprising in light of ample research linking suppression to negative behavioral and mental health outcomes (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Betts, Gullone, & Allen, 2009; Gross, 1998; Gross & John, 2003). Suppression involves inhibiting the behavioral expression and thoughts associated with experiencing an emotion (Gross, 1998), meaning that suppression may decrease the behavioral *expression* of negative emotion, but may not in fact reduce the *experience* of negative emotions. As such, negative emotions may continue to linger and remain unresolved. Given that maltreated children tend to demonstrate poor ER and emotional competence more broadly, it was anticipated that they would also report using more suppression when confronted with negative emotions. However, suppression also demands a certain level of behavioral impulse control and cognitive executive functioning, both of which are often limited in maltreated children (DePrince, Weinzierl, & Combs, 2009; Pears & Fisher, 2005; Shields &

Cicchetti, 1998; Shields, Cicchetti, & Ryan, 1994). As such, suppression may be too behaviorally and cognitively demanding for maltreated children to successfully employ.

Findings for distraction suggested that the use of distraction strategies increased significantly across age for the comparison children, while age was unrelated to distraction use for the maltreated nondisclosure children. A potential reason for these divergent patterns may be that the maltreated nondisclosure children rely on distraction as one of their main ER strategies across age (since they reported few primary and other secondary control strategies). Comparison children, in contrast, tend to use primary control earlier in development and then shift to secondary control strategies more across the transition to adolescence (McRae et al., 2012; Zeman, Cassano, Perry-Parrish, & Stegall, 2006). As mentioned, with age, the psychological intensity of the events increased and both being older and reporting more psychologically intense events were related to decreases in the use of primary control strategies. Thus, the comparison children may have switched their ER from primary control, which may require control over the situation or reliance on others to resolve the problem, to distraction strategies, which are often more behaviorally-based and self-driven.

Additional analyses were conducted to determine if the three disclosure groups differed on the extent to which they reported using antisocial ER strategies to cope with their sad and mad feelings. Overall, few children reported using antisocial strategies, with only 10% of the entire sample reporting the use of one or more antisocial strategies across the two event types. However, maltreated disclosure children were more likely to report these strategies, particularly for sad events. Antisocial strategies reflected extreme acts, such as violence, self-harm substance use, or suicide attempts. Importantly, children in the maltreated nondisclosure group did not report using antisocial strategies more often than the comparison children, indicating that the

maltreated disclosure group may be a particularly vulnerable subset of maltreated children. Moreover, the fact that these children elected to report on their abuse and/or removal as their emotional event suggests that, for these children, the experiences were highly salient and perhaps hints to their high distress for uncontrollable events, thereby resulting in more antisocial behavior.

### **Broader Implications for Emotion Literature**

Two other points are important with regard to the present study's results. One concerns the fact that very few children reported ER strategies commonly studied. Specifically, throughout the ER literature there are several main ER strategies that are thought to confer either risks or benefits to individuals' mental health and overall well-being. These strategies include reappraisal, acceptance, rumination, and suppression (Betts, Gullone, & Allen, 2009; Cicchetti, Ackerman, & Izard, 1995; Connor-Smith et al., 2000; Garnefski et al., 2007; Gross & John, 2003; Rafnsson, Johnson, & Windle, 2006; Rudolph & Heller, 1997; Silk et al., 2003; Windle & Windle, 1996). Ample evidence suggests that reappraisal and acceptance are fundamental ER strategies linked to a host of positive outcomes, such as better social functioning, fewer symptoms of depression, and better overall well-being (Garnefski et al., 2007; Gross & John, 2003; Rafnsson, Johnson, & Windle, 2006; Rudolph & Heller, 1997; Windle & Windle, 1996). In contrast, rumination and suppression have been consistently linked to a range of negative outcomes, including increased internalizing and externalizing problems (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Betts, Gullone, & Allen, 2009; Ehring, Tuschen-Caffier, Schnulle, Fischer, & Gross, 2010; Gross & John, 2003). To date, much of this work has been conducted with adults; although some consistent evidence has emerged with child and adolescent samples (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Garnefski et al., 2007). In the present

study, however, very few children (regardless of maltreatment history) reported reappraisal, acceptance, or rumination across the two emotional events. In fact, not a single child in a sample of almost 400 participants reported ruminating.

One explanation concerns different measurements of ER. Specifically, in the present study, children were given open-ended prompts requesting them to nominate ways in which they regulated their feelings. In other research, closed-ended, checklist-format questionnaires have been used to assess ER strategies in response different types of situations (e.g., when having problems with other children) (Connor-Smith et al., 2000; Garnefski et al., 2007; Garnefski, Kraaij, & van Etten, 2005; Silk, Steinberg, & Sheffield Morris, 2003). These questionnaires are largely based on ER studies with adults and have been adapted to be developmentally-appropriate for children and adolescents (Garnefski et al., 2007). Importantly, though, closed-ended, checklist-format questionnaires are structured to ask children about specific types of ER strategies, meaning that they are designed *a priori* to tap specific ER strategies. For example, the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA; Gullone & Taft, 2012), a widely utilized self-report questionnaire assessing ER in children and adolescents, only assesses two ER strategies—cognitive reappraisal and emotional suppression. While informative in assessing those strategies, such questionnaires do not allow for children to freely report on any and all types of strategies that they use (Connor-Smith et al., 2000). Moreover, the questionnaires often ask about ER strategies in general rather than in the context of specific emotions. Thus, while children may endorse using certain ER strategies (e.g., reappraisal and acceptance) in general, hypothetical situations, these strategies may not map onto what they truly do when confronted with extreme emotional distress. In fact, findings from the present study suggest that

when confronted with intense, emotional events children tend to use more basic behavioral strategies than would be expected based on the extant literature.

A second point worth mentioning concerns the divergent pattern of findings for the two valences of emotion—sad and mad. More specifically, most of the significant findings in the present study were for the sad emotion event; with few differences emerging for mad events. For example, for sad events, the maltreated children in particular reported experiencing loss and abuse and/or removal. As mentioned previously, these are psychologically intense events that likely elicit strong feelings of distress and may tax maltreated children's coping abilities more so than normative daily stressors of interpersonal conflict and not getting one's wants met (both common events in the mad condition). Children also have more limited control of experiences of loss and abuse and/or removal; therefore perhaps limiting their use of certain regulation strategies. Importantly, the divergent findings for sad and mad events have implications for maltreated children's emotional and behavioral functioning. Previous work has linked problems regulating sadness to internalizing symptomatology (Zeman, Shipman, & Penza-Clyve, 2001; Zeman, Shipman, & Suveg, 2002); while deficits in coping with anger are associated with increases in externalizing problems (Bohnert, Crnic, & Lim, 2003; Silk, Steinberg, & Morris, 2003; Zeman, Shipman, & Suveg, 2002). Findings from the present study suggest that maltreated children may be at increased risk relative to comparison children for internalizing problems, potentially due to differences in ER capabilities. However, given the cross-sectional nature of the present study additional work is needed to determine whether deficits in ER cause the increases in internalizing symptoms so often found in maltreated samples (Bolger & Patterson, 2001; Cicchetti, & Rogosch, 1997; Hart, Gunnar, & Cicchetti, 1996; Lansford et al., 2002).



## **Limitations and Future Directions**

Although the present study represents a significant, novel step in investigating potential emotion-related mechanisms that may contribute to long-term consequences of maltreatment, it represents only the first step, and limitations to the results need to be acknowledged. First, there is the possibility that children in the comparison sample have experienced some form of maltreatment in the past. However, any maltreatment experienced by the comparison sample should be limited given that the potential maltreatment was not uncovered, and the comparison sample should still differ significantly in experience from this particularly high-risk maltreated sample. Furthermore, any maltreatment in the comparison sample would potentially attenuate differences; therefore the approach is possibly slightly more conservative than it would be if the comparison sample was screened.

Second, the maltreated children placed at the residential care facility from which the study was conducted are likely the most extreme cases of maltreatment, both in terms of the types and severity of maltreatment experienced, but also in terms of the negative outcomes associated with their maltreatment (i.e., behavioral issues, numerous placements, and psychological problems). Specifically, the maltreated children residing at the residential facility were often placed at the facility and remained there for extended periods of time due to high levels of behavioral problems, running away, previous placement failure, no current viable placement, or parent refusal to take children. Thus, the sample was likely extreme in their emotional difficulties, behavioral problems, and placement difficulties. This allowed for a compelling test of the proposed mechanisms in the samples most likely to differ. However, this group is unlikely to be representative of all maltreated children, and future research will need to

expand the model and findings uncovered here to other samples of maltreated children and adolescents.

Third, although the present study was novel in that children were given open-ended prompts and allowed to nominate their own emotional events and ER strategies, future studies would benefit from even more comprehensive emotion narratives. For example, in the present study, children were not asked follow-up questions about specific facets of the emotional events, such as when the event took place and how old they were at the time. Nor were they asked to elaborate on individual ER strategies they reported. Given that temporal understanding increases with age (Tartas, 2001), it may be that there were important developmental differences in the length of time that had elapse between the event in question and the child's retelling of it. Furthermore, perhaps maltreated and comparison children differed in the age of their memories; this might be especially true of the maltreated disclosure group who reported on their removal, which was a very recent event. In contrast, children in the comparison and maltreated nondisclosure groups may have been reporting on events from the more distant past, thus perhaps impacting the accuracy of their reports (Gordon, Ornstein, Clubb, Nida, & Baker-Ward, 1991; Lamb, Sternberg, & Esplin, 2003; Salmon & Pipe, 2000). However, given that maltreated and comparison children show few differences in memory abilities (Eisen, Qin, Goodman, & Davis, 2002; Howe, Cicchetti, Toth, & Cerrito, 2004), there is little reason to suspect that the comparison and maltreated nondisclosure groups differed in the quality of their reports. Future studies examining the length of the delays between the events and children's recall, as well as the age of the children at the time of the events, could unpack some of these issues.

## **Conclusions**

Findings from Project 1 provide novel insights into the emotion regulation skills of maltreated children and how their abilities differ from those of comparison children. Overall, maltreated children reported more psychologically intense emotional experiences, including those relating to violence, maltreatment, and removal from home. These extreme events had crucial implications for emotion regulation, with children in the maltreated disclosure group reporting fewer problem-solving ER strategies and more disengagement and antisocial ER strategies. Given that ER deficits have been linked to a host of negative outcomes commonly found in maltreated populations, including behavioral and mental health functioning, the present study has important implications for the treatment and intervention of such a vulnerable developmental population.

## **CHAPTER 4: Results of Project 2**

The primary objective of Project 2 was to examine the links between ER and behavioral functioning in both maltreated and comparison children. Two main hypotheses were tested. First, behavioral functioning was expected to decrease with age, particularly in maltreated children. Specifically, both internalizing (e.g., emotion problems) and externalizing (e.g., aggression) problems were anticipated to increase with age. Second, poorer ER (e.g., more disengagement ER strategies) was expected to be associated with poorer functioning (e.g., more emotional problems and aggression) in maltreated children. Conversely, better ER (e.g., more problem-solving, reappraisal) was anticipated to be related to better functioning (e.g., less emotional problems and aggression) in maltreated children. An ER by age interaction was also anticipated, such that with age, poor ER would increase, and relations to decreased behavioral functioning

would become more robust. Means and standard deviations of the behavioral functioning measures are reported by maltreatment status in Table 5.

**Table 5** Means and Standard Deviations of Behavioral Functioning by Maltreatment Status

	Comparison		Maltreated	
	Mean	SD	Mean	SD
Emotion Problems	4.49	1.75	4.11	2.26
Conduct Problems	2.14	1.46	2.83	2.13
Hyperactivity	3.47	1.63	3.96	2.35
Peer Problems	2.41	1.50	3.20	1.82
Prosocial Behavior	8.00	1.51	7.72	1.76
Total Behavioral Problems	12.47	4.13	14.78	5.72
Total Aggression	7.45	4.94	9.55	7.51

**Developmental Trajectory of Behavioral Functioning.** The first hypothesis was tested via linear regressions. Dependent variables included the five Strengths and Difficulties (SDQ) subscales, the total SDQ score, and the total RPQ score (the two RPQ subscales were highly correlated with one another,  $r = .62, p < .001$ , and, as such, their findings mirrored those of the total score). Predictors included children’s age, gender, and maltreatment status (dichotomous) (Model 1). An age x maltreatment status interaction was also included (Model 2).

For emotion problems, Models 1 and 2 were significant,  $F_s(4, 389) > 6.52, p < .001$ , although the  $\Delta R^2$  was not significant. Children’s gender and maltreatment status emerged as significant predictors, with girls and comparison children reporting more emotion problems. Next, for conduct problems, Models 1 and 2 were significant,  $F_s(4, 389) > 6.42, p < .001, \Delta R^2 = .021$ . In Model 1, significant predictors included age and maltreatment status, with increasing age and having a history of maltreatment being associated with greater conduct problems. The age x group interaction was significant in Model 2. For comparison children, age was unrelated

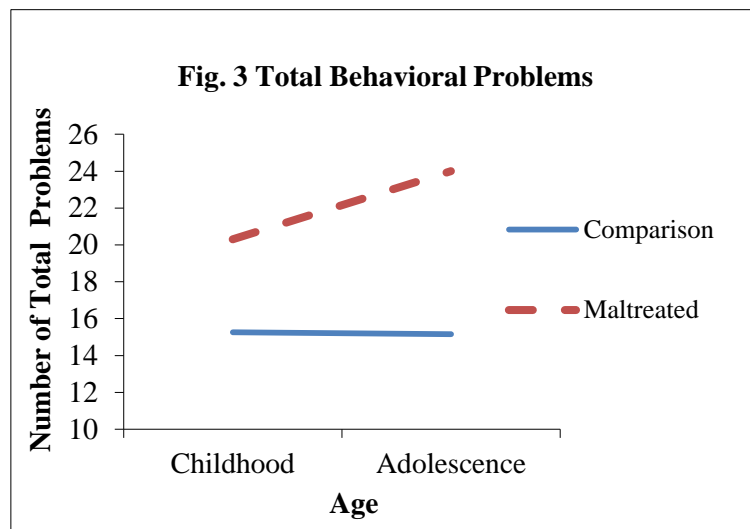
to conduct problems,  $r = -.13$ , *n.s.*, whereas, for maltreated children, age was positively associated with conduct problems,  $r = .20$ ,  $p = .001$ . A z-test confirmed that the two slopes significantly differed;  $z = -3.04$ ,  $p = .001$ .

For hyperactivity, Models 1 and 2 were significant,  $F_s(4, 388) > 4.43$ ,  $p_s < .005$ ,  $\Delta R^2 = .013$ . In Model 1, age and maltreatment status emerged as significant predictors. With age, hyperactivity increased. Maltreated children reported more hyperactivity problems relative to comparison children. The age by maltreatment status interaction was significant in Model 2. Again, for comparison children, age was unrelated to hyperactivity problems,  $r = -.02$ , *n.s.*, whereas, for maltreated children, age was positively associated with hyperactivity problems,  $r = .20$ ,  $p = .001$ . A z-test confirmed that the two slopes significantly differed;  $z = -2.01$ ,  $p = .044$ .

Next, for peer problems, Models 1 and 2 were significant,  $F_s(4, 384) > 8.69$ ,  $p < .001$ , although the  $\Delta R^2$  was not significant. Both gender and maltreatment status was significant predictors, with girls and maltreated children reporting greater peer problems. Neither model for prosocial behaviors was significant,  $F_s(4, 390) < 1.60$ , *n.s.*

Lastly, for total problems on the SDQ, Models 1 and 2 were significant,  $F_s(4, 390) > 6.99$ ,  $p_s < .001$ ,  $\Delta R^2 = .021$ . In

Model 1, maltreatment status emerged as a significant predictor, with maltreated children reporting more total problems relative to comparison children. The age by maltreatment status interaction was significant in Model 2. As can be



seen in Figure 3, for comparison children, age was associated with a slight decrease in total problems,  $r = -.18, p = .042$ , whereas, for maltreated children, age was positively associated with total problems,  $r = .17, p = .008$ . A z-test confirmed that the two slopes significantly differed;  $z = -3.17, p = .002$ .

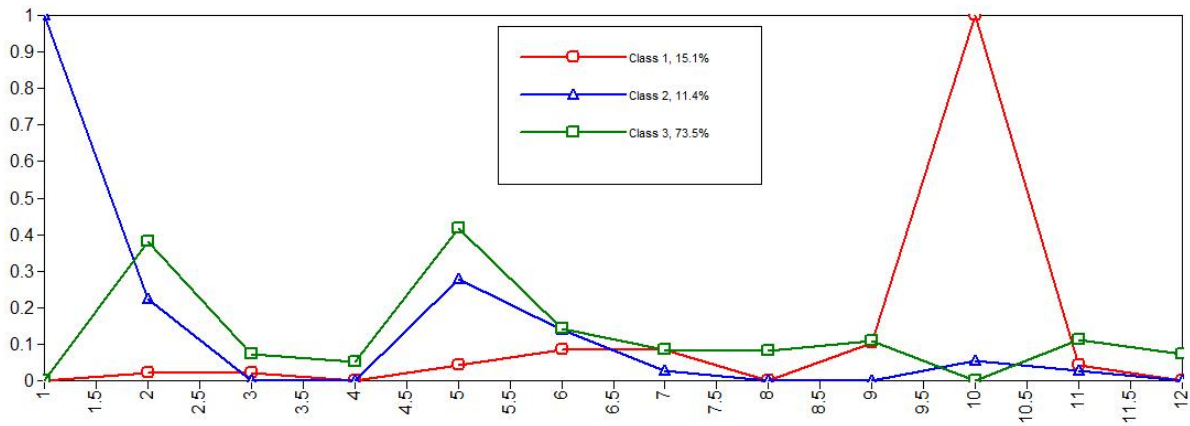
Next, when examining total aggression, Models 1 and 2 were significant,  $F_s(4, 389) > 5.96, p_s < .002$ . In Model 1, both age and maltreatment status were significant. Increasing age was associated with increases in total aggression. Once again, maltreated children reported more total aggression relative to comparison children. In Model 2, the age by maltreatment status interaction was significant. For comparison children, age was not associated with total aggression,  $r = -.16, n.s.$ , whereas, for maltreated children, age was positively associated with total aggression,  $r = .23, p < .001$ . A z-test confirmed that the two slopes significantly differed;  $z = -3.64, p < .001$ .

Taken together, the results indicated that age and maltreatment status were both highly related to behavioral functioning. In particular, conduct problems, hyperactivity, total behavioral problems, and total aggression *increased* with age for the maltreated children; conversely, age was largely unrelated to behavioral functioning in the comparison group, with the exception that total behavioral problems actually *decreased* with age for these children.

**Emotion Regulation and Behavioral Functioning.** To test the second hypothesis that poorer ER would be associated with poorer behavioral functioning, first, a latent class analysis (LCA) was conducted to determine whether meaningful clusters, or classes existed in the children's tendencies to use ER strategies. LCA is used to classify individuals from a heterogeneous population into smaller, relatively homogenous subgroups (Muthén & Muthén, 2000). The LCA was conducted using Mplus, Version 6.11 (Muthén & Muthén, 1998-2011).

Model solutions were evaluated on the basis of the Akaike information criterion (AIC), the Bayesian information criterion (BIC), entropy, and the Lo–Mendell–Rubin likelihood ratio test. Better fitting models had lower AIC and BIC values, an entropy value approaching 1, and a  $p$ -value less than .05 on the Lo–Mendell–Rubin likelihood ratio test. Second, the classes were examined as predictors of behavioral functioning across age and maltreatment status.

*Extraction of Latent Classes.* The LCA were conducted for ER strategies reported regarding the sad and mad events separately. Indicators of the LCA were the individual ER strategies, specifically primary control, secondary social support, positive thinking, reappraisal, distraction, suppression, crying, venting, self-soothing, avoidance, sleep, and “nothing”. The remaining strategies were excluded as the initial LCA results indicated very rare occurrence of these strategies, including conflict and general disengagement (see chapter 3 results). Data from both the maltreated and comparison children were included in the LCA. LCAs were conducted that specified 2-6 classes. For sad events, the best fitting model, as indicated by the criteria outlined above, was the three-class model. The entropy was high (1.000), which suggests great precision in assigning individual cases to their appropriate class. As shown in Figure 4, this model included the following: (1) a class of individuals who reported doing nothing to regulate their emotions (Disengagers), (2) a class of individuals with high tendencies toward using primary coping and moderate tendencies toward using distraction (Primary copers), and (3) a class of individuals with moderate tendencies toward secondary social support and distraction (Secondary copers).



**Figure 4. Probability distribution for the Three Latent Classes - Sad Events.** Probabilities are on the y-axis. ER strategies are shown on the x-axis: (1) Primary control, (2) Secondary social support, (3) Positive thinking, (4) Reappraisal, (5) Distraction, (6) Suppression, (7) Cry, (8) Venting, (9) Self-soothing, (10) Nothing, (11) Avoidance, and (12) Sleep. Class 1 represents 15.1% of the sample, Class 2 represents 11.4%, and Class 3 represents 73.5%.

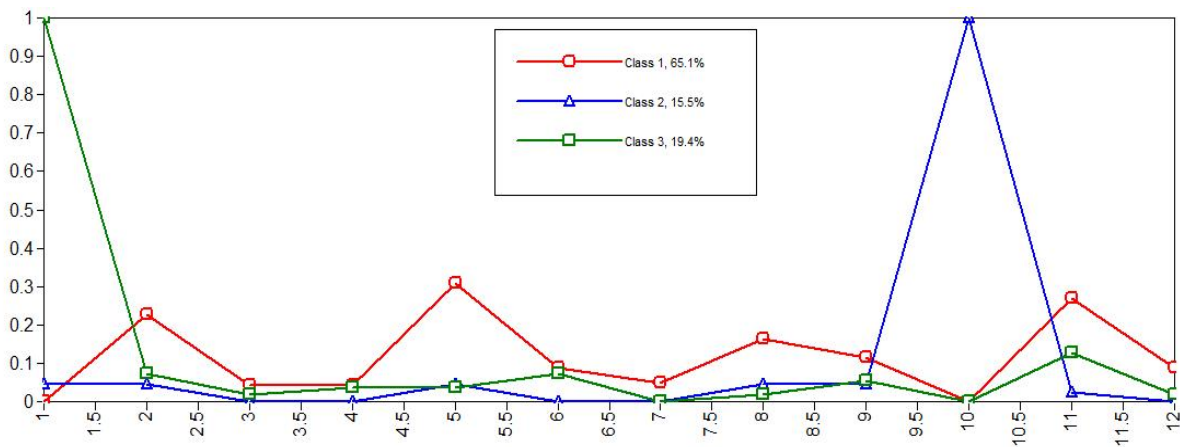
For mad events, the best fitting model, as indicated by the criteria outlined above, was also a three-class model. As shown in Figure 5, the classes were highly similar to those uncovered for ER to sad events, though some children moved classes and the proportion of children in each class varied. (1) individuals who tended to report moderate probabilities of secondary control, distraction, and avoidance (Secondary copers), (2) individuals who tended to report doing nothing to regulate their emotions (Disengagers), and (3) individuals with high likelihood of reporting primary control strategies (Primary copers).

*Comparison of Classes.* After extracting the three latent classes, individuals were assigned to their most likely class and were then compared on a number of demographic measures. Comparisons were conducted using chi-square tests and one-way analyses of variance (ANOVAs). Significant differences for sad events were found for maltreatment status and disclosure group. Specifically, maltreated children were more likely to be Disengagers, whereas comparison children were more likely to be Primary copers. Differences for Secondary copers by



maltreatment status were not found. Next, for disclosure group, children in the maltreated disclosure group were more likely to be Disengagers than Secondary or Primary copers. Comparison children were more likely to be Primary copers than Disengagers. No gender or age differences for the LCA group were found.

Significant differences for mad events were found for age. Specifically, Secondary copers were significantly older ( $M = 13.29$ ) than Primary copers ( $M = 11.95$ ). No gender, maltreatment status, or disclosure group differences for the mad LCA group were found.



**Figure 5. Probability Distribution for the Three Latent Classes - Mad Events.** Probabilities are on the y-axis. ER strategies are shown on the x-axis: (1) Primary control, (2) Secondary social support, (3) Positive thinking, (4) Reappraisal, (5) Distraction, (6) Suppression, (7) Cry, (8) Venting, (9) Self-soothing, (10) Nothing, (11) Avoidance, and (12) Sleep. Class 1 represents 65.1% of the sample, Class 2 represents 15.5%, and Class 3 represents 19.4%.

*Links between Classes and Behavioral Functioning.* To examine the links between LCA classifications and behavioral functioning, 3(LCA group: Disengagers, Primary copers, or Secondary copers) x 2 (gender: girls or boys) x 2 (maltreatment status: yes or no) one-way analyses of covariance (ANCOVAs) were conducted on each of the following dependent measures: the five Strengths and Difficulties (SDQ) subscales, the total SDQ score, and the total RPQ score. Age and psychological intensity were added as covariates, the latter included

because the maltreatment children's reported events were consistently more intense psychologically than the comparison children's events. A custom model was used to allow for an examination of possible two-way interactions for age, gender, and LCA group.

For sad events, when examining emotion problems a gender x age interaction was found,  $F(1, 302) = 5.88, p = .016$ , such that emotion problems decreased with age for boys,  $r = -.25, p = .004$ , whereas age was unrelated to emotion problems in girls,  $r = .06, n.s.$  Next, for conduct problems, main effects for maltreatment status and age were found [maltreatment status:  $F(1, 303) = 7.75, p = .006$  and age:  $F(1, 303) = 6.96, p = .009$ ]. Maltreated children reported significantly more conduct problems ( $M = 2.85$ ) than comparison children ( $M = 2.13$ ). With age, conduct problems increased.

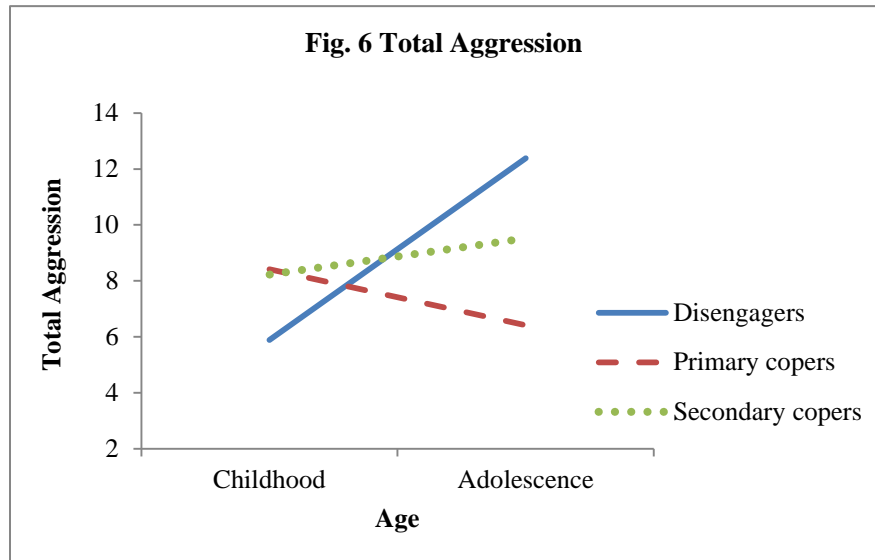
When examining hyperactivity problems, main effects for LCA group and age were further qualified by a LCA group x age interaction,  $F(2, 303) = 6.81, p = .001$ . Follow-up analyses indicated that, for Disengagers, hyperactivity problems increased with age,  $r = .53, p < .001$ . Age was unrelated to hyperactivity problems for Primary and Secondary copers,  $r_s < .07, n.s.$  Next, for peer problems, a main effect for maltreatment status emerged,  $F(1, 299) = 14.32, p < .001$ . Maltreated children reported more peer problems ( $M = 3.16$ ) relative to comparison children ( $M = 2.29$ ). No significant effects or interactions were found for prosocial behaviors.

Lastly, for total problems, main effects for maltreatment status and age were found: [maltreatment status:  $F(1, 303) = 12.31, p = .001$  and age:  $F(1, 303) = 5.22, p = .023$ ]. Maltreated children reported significantly more total problems ( $M = 14.86$ ) than comparison children ( $M = 12.44$ ). With age, total problems increased. A LCA group x age interaction also emerged,  $F(2, 303) = 3.24, p = .041$ . Follow-up analyses indicated that, for Disengagers, total problems

increased with age,  $r = .46, p = .001$ . Age was unrelated to total problems for Primary and Secondary copers,  $r_s < .05, n.s.$

Next, for total aggression, a main effect for maltreatment status,  $F(1, 302) = 9.03, p = .003$ . Maltreated children

reported significantly more total aggression ( $M = 9.52$ ) than comparison children ( $M = 6.97$ ). Main effects for LCA group and age were further qualified by a LCA group x age



interaction,  $F(2, 302) = 7.75, p = .001$ . Follow-up analyses indicated that, for Disengagers, total aggression increased with age,  $r = .52, p = .001$ . Age was unrelated to total aggression for Primary and Secondary copers,  $r_s < .08, n.s.$  (Figure 6).

For mad events, when examining emotion problems a gender x age interaction was found,  $F(1, 269) = 6.13, p = .014$ , such that emotion problems decreased with age for boys,  $r = -.23, p = .009$ , whereas age was unrelated to emotion problems in girls,  $r = .07, n.s.$  For conduct problems, main effects for maltreatment status and gender were found [maltreatment status:  $F(1, 270) = 11.98, p = .001$  and gender:  $F(1, 270) = 5.94, p = .015$ ]. For maltreatment status, maltreated children reported significantly more conduct problems ( $M = 3.04$ ) than comparison children ( $M = 2.16$ ). For gender, boys reported more conduct problems ( $M = 2.74$ ) relative to girls ( $M = 2.48$ ). The main effect of gender was further qualified by a gender x age interaction,  $F(1, 270) = 6.25, p = .013$ . Follow-up analyses indicated that conduct problems increased with

age in girls,  $r = .27, p = .001$ , whereas age was unrelated to conduct problems in boys,  $r = -.05, n.s.$

Next, for hyperactivity problems, a main effect for gender was further qualified by a gender x age interaction,  $F(1, 270) = 5.08, p = .025$ . Again, with age, hyperactivity problems increased in girls,  $r = .22, p = .007$ , while age was unrelated to hyperactivity in boys,  $r = -.01, n.s.$  When peer problems were examined, a main effect of maltreatment status was found,  $F(1, 266) = 19.15, p < .001$ . Maltreated children reported more peer problems ( $M = 3.32$ ) relative to comparison children ( $M = 2.28$ ). Next, when prosocial behaviors were examined, no significant main effects or interactions emerged. Lastly, for total behavior problems, main effects of maltreatment status and gender [maltreatment status:  $F(1, 270) = 16.68, p < .001$  and gender:  $F(1, 270) = 5.48, p = .020$ ]. Maltreated children reported more total behavioral problems ( $M = 15.41$ ) relative to comparison children ( $M = 12.56$ ). The main effect of gender was further qualified by a gender x age interaction,  $F(1, 270) = 9.49, p = .002$ . With age, total behavioral problems increased in girls,  $r = .24, p = .003$ , while age was unrelated to hyperactivity in boys,  $r = -.11, n.s.$

Next, aggression problems were examined for mad events. First, for reactive aggression, a main effect of maltreatment status,  $F(1, 269) = 6.02, p = .015$ . Maltreated children reported more reactive aggression ( $M = 7.96$ ) relative to comparison children ( $M = 6.62$ ). For proactive aggression, main effects for maltreatment status and psychological intensity were found [maltreatment status:  $F(1, 269) = 7.61, p = .006$  and psychological intensity:  $F(1, 269) = 9.10, p = .003$ ]. Maltreated children reported significantly more proactive aggression ( $M = 2.83$ ) than comparison children ( $M = 1.67$ ). Increasing psychological intensity was associated with increases in proactive aggression. Lastly, for total aggression, main effects for maltreated status

and psychological intensity were once again found [maltreatment status:  $F(1, 269) = 3.41, p = .005$  and psychological intensity:  $F(1, 269) = 4.79, p = .030$ ].

## **CHAPTER 5: Discussion of Project 2**

Overall, the primary goal of Project 2 was to examine the links between ER and behavioral functioning in both maltreated and comparison children. Two main hypotheses were tested: (1) behavioral functioning was expected to decrease with age, particularly in maltreated children, and (2) poorer ER (e.g., more disengagement ER strategies) was expected to be associated with poorer behavioral functioning (e.g., more emotional problems and aggression), regardless of maltreatment history. Conversely, better ER (e.g., more problem-solving) was anticipated to be related to better behavioral functioning (e.g., reduced emotional problems and aggression). An ER by age interaction was also anticipated, such that with age, poor ER would increase, and relations to decreased behavioral functioning would become more robust.

### **Developmental Trajectories of Behavioral Functioning**

Findings from the present study overwhelmingly supported the first hypothesis. For the maltreated children, age was significantly and positively associated with increases in conduct problems, hyperactivity, total behavioral problems, reactive aggression, proactive aggression, and total aggression. Conversely, age was largely unrelated to behavioral functioning in the comparison group, with the exception that total problems and proactive aggression *decreased* with age. These findings are in keeping with previous work in community samples of children and adolescents suggesting that behavioral problems tend to remain stable or slightly decrease across age (Reef, Diamantopoulou, van Meurs, Verhulst, & van der Ende, 2011). What has been less well studied, and the present study provides novel insight into, is the developmental trajectory of behavioral functioning in maltreated children. Our study hints that this trajectory

may vary considerably and highlights a clear need for longitudinal research to confirm these hints.

Ample evidence suggests that maltreatment exposure places children at heightened risk for a range of behavioral problems, including internalizing (e.g., anxiety and depression) and externalizing (e.g., aggression and conduct problems) symptomatology (Burns, Fischer, Jackson, & Harding, 2012; Cicchetti & Rogosch, 2001; Cutajar et al., 2010; Fergusson, Boden, & Horwood, 2008; Kim-Cohen et al., 2006; MacMillan & Munn, 2001; Repetti, Taylor, & Seeman, 2002; Trickett, Noll, & Putnam, 2011; Widom, 1999; Wise, Zierler, Krieger, & Harlow, 2001). Much of the work examining the links between maltreatment and behavioral functioning, though, has focused earlier in development, especially mid-childhood (Cicchetti & Rogosch, 2001; Kim-Cohen et al., 2006; Repetti, Taylor, & Seeman, 2002). Findings from the present study indicate that links between maltreatment and behavioral functioning might be even more robust later in development, particularly during adolescence, and are in keeping with the cumulative risk hypothesis (Rutter, 1979; Sameroff, 2000). This hypothesis posits that the accumulation of risk factors impacts developmental outcomes, such that the greater number of risk factors, the greater the prevalence of behavioral and mental health problems (Deater-Deckard, Dodge, Bates, & Pettit, 1998; Greenberg, Speltz, DeKlyen, & Jones, 2001; Jones, Forehand, Brody, & Armistead, 2002; Rutter, 1979; Sameroff, 2000; Williams, Anderson, McGee, & Silva, 1990). As mentioned, maltreated children are often exposed to a wide range of challenges and stressors, including exposure to neglect and/or abuse, crime, domestic and community violence, poverty, separation from loved ones, multiple placement changes, and involvement in the legal system (Costello, Erkanli, Fairbank, & Angold, 2002; Cox, Kotch, & Everson, 2003; Finkelhor, Turner, Ormrod, & Hamby, 2009; Folman, 1998; Howes & Segal, 1993; Lynch & Cicchetti, 1998;

Melinder, Baugerud, Ovenstad, & Goodman, 2013; Parke & Clarke-Stewart, 2003; Quas, Wallin, Horwitz, Davis, & Lyon, 2009). Over time, these individual stressors may accumulate and, potentially, interact with one another to place maltreated children at further risk for negative outcomes as they age, such as those found in the present study among the older more than the younger children.

### **Emotion Regulation and Behavioral Functioning**

Given that maltreated children demonstrated poorer behavioral functioning relative to the comparison children, particularly across age, the second goal of Project 2 was to examine ER as a potential mechanism underlying these effects. To that end, a LCA was applied to identify subgroups of emotion regulators. For both sad and mad events, three distinct classes were identified: (1) a class of individuals who reported doing nothing to regulate their emotions (Disengagers, approximately 15% of the sample), (2) a class of individuals with high probabilities of using primary coping (Primary copers; approximately 15% of the sample), and (3) a class of individuals with high-to-moderate probabilities of secondary social support and distraction (Secondary copers; approximately 70% of the sample).

After extracting the three classes, they were then compared on a number of demographic measures. Significant differences for sad events were found for maltreatment status, with maltreated children being more likely to be Disengagers, and comparison children being more likely to be Primary copers. These differences in class membership may be explained by maltreated children's aberrant ER socialization. Specifically, maltreating parents often display ineffective regulation strategies and fail to teach their children about constructive ways to manage their emotions. Thus, maltreated children may struggle to utilize certain ER strategies,

such as problem-solving or social support seeking (Shipman et al., 2007), and instead, may more frequently utilize disengagement ER strategies, such as avoidance or simply doing nothing.

Class membership also had important implications for behavioral functioning. Specifically, differences across the three classes were found for hyperactivity problems, total behavioral problems, reactive aggression, proactive aggression, and total aggression. Across all of these behavioral problems, the same pattern emerged, such that behavioral problems increased with age for the Disengagers, but were unrelated to age for the Primary and Secondary copers. The association between disengagement regulation and poor behavioral outcomes is in keeping with previous research demonstrating that increased use of disengagement ER strategies in children and adolescents is linked to greater depressive symptomatology and problem behaviors (Silk et al., 2003).

One explanation for the detrimental association between disengagement and behavioral functioning may stem from the strategies being passive, and therefore less effective at reducing emotional distress, which may expose children to prolonged exposure to the stressor and the emotional aftermath. Across age, disengagement might become even more problematic as adolescents seemingly have failed to learn more adaptive, successful ER strategies (indicating a broader deficit in ER) and may also have been more chronically exposed to stress as a result of their passive regulation tendencies, thus exacerbating their behavioral problems (Silk et al., 2003).

It is important to note that disengagement strategies, namely doing nothing to regulate one's emotions, were linked to poor behavioral functioning across age regardless of maltreatment history. Stated another way, the Disengagers class was comprised of both maltreated and comparison children. That being said, maltreated children were significantly



more likely to be Disengagers than comparison children. Thus, it seems reasonable that maltreatment is associated with increased use of disengagement strategies, which in turn places children at greater risk for behavioral problems. However, both the use of disengagement strategies and maltreatment predicted poor behavioral functioning. Thus, comparison children who disengage are still at increased risk of behavioral problems relative to comparison children who use primary or secondary control strategies. Similarly, maltreated children who use primary and/or secondary control strategies are still at increased risk of behavioral problems relative to comparison children.

Interestingly, the present study did not find that the use of primary or secondary control strategies predicted better behavioral outcomes, despite evidence that greater use of primary (e.g., problem-solving, seeking primary social support) and secondary control (e.g., acceptance and reappraisal) strategies are associated with decreases in behavior problems across childhood and adolescence (Garnefski, Rieffe, Jellesma, Terwogt, & Kraaij, 2007; Rafnsson, Johnson, & Windle, 2006; Rudolph & Heller, 1997; Windle & Windle, 1996). Perhaps, due to the limited control associated with the high psychological intensity of the children's emotional events, the use of strategies that involve efforts to change a stressful or emotion-inducing situation, such as problem-solving about or seeking out a parent or teacher to help resolve a situation (Rudolph, Hammen, & Burge, 1995), were ineffective. In other words, when an event or problem is largely out of a child's control, use of primary control may be both unlikely and, perhaps, unsuccessful (Thurber & Weisz, 1997).

With regards to secondary control strategies, it is possible that these strategies were relatively effective in regulating negative affect in some instances (e.g., talking with a trusted adult about one's emotions) but ineffective in other instances (e.g., drinking alcohol to distract

from the emotional experience), thus averaging out to a negligible overall effect. Moreover, the secondary control strategies most often linked to better behavioral outcomes in the extant literature are reappraisal and acceptance (Garnefski, Rieffe, Jellesma, Terwogt, & Kraaij, 2007; Rafnsson, Johnson, & Windle, 2006; Rudolph & Heller, 1997; Windle & Windle, 1996). In the present study, almost no children reported using either of these strategies. Instead, the secondary control strategies that emerged were secondary social support and distraction. Future research collecting information about the controllability of the emotional event, as well as, more detailed information about the exact nature of the ER strategies (e.g., in the case of social support, who was the source of the social support) would provide further insight into the relations between primary and secondary control strategies and behavioral functioning.

An additional point worth mentioning concerns the divergent pattern of findings for the two valences of emotion—sad and mad. As with Project 1, almost all of the significant findings in the Project 2 involved how children reported regulating their emotions in response to the sad emotion event; with few differences emerged regarding children's regulation during mad events. These findings are in line with previous work with community samples of children and adolescents (Eisenberg et al., 2001; Silk et al., 2003) and further support assertions that a nonspecific emotion dysregulation component, including dysregulation of sadness, predicts both internalizing and externalizing problems, particularly in adolescence. Moreover, in the present study, sad events were significantly more psychologically intense ( $M = 1.24$ ) than mad events ( $M = .55$ ) and reflected more extreme life events (e.g., loss of loved one compared to interpersonal conflict). The psychological intensity of an emotional event may have implications for the duration of emotional distress resulting from the event, such that more psychologically intense events may be associated with longer emotional distress responses; thus disengaging from highly

intense events may more strongly impact children's behavioral functioning relative to disengaging from less intense events. Future work is needed, though, to examine the links between psychological intensity and durations of distress across multiple negative emotions, and how these relations impact children's functioning.

### **Limitations and Future Directions**

The present study provides novel insight into emotion-related mechanisms that may contribute to long-term consequences of maltreatment; however it is not without limitations. An important limitation is the cross-sectional and correlational design of the research. Children were interviewed at a single time point regarding their ER and behavioral functioning; therefore the findings cannot shed light on the directionality of effects. It is likely that deficits in ER may be both a cause and consequence of poor behavioral functioning. Future research should build off the results of the present study through longitudinal investigations to understand trajectories of ER and functioning as children develop.

Relatedly, future longitudinal work could provide additional insight into how, at various ages, ER shapes *subsequent* behavioral functioning. The strongest test of developmental trends is through research following the same sample of children across the transition to adolescence. Such work would help elucidate how ER relates to behavioral functioning over time, especially during critical transitions such as adolescence. Nevertheless, the present study was unique in that a wide age range of children and adolescents were included, thus providing some of the first glimpses into developmental trends in high-risk, maltreated samples.

A final limitation worth noting is the reliance on retrospective self-report measures of ER and behavioral functioning. Importantly, although the child was the informant for all measures, the method of obtaining information differed between the dependent and independent variables

(i.e., open-ended free recall narrative versus close-ended standardized questionnaires), thereby reducing the problem of shared-method variance. Moreover, the qualitative design of the ER narrative task provides a certain level of confidence that children accurately and honestly described their emotional experiences and reactions. Children in the present study discussed their alcohol and drug use, inflicting harm to the self and others, engaging in illegal activities, as well as specific details about highly emotional and personal events in their lives (see Appendix). Thus, the children did not seem to paint themselves and their actions in an idealistic, socially-acceptable light, but rather seemed willing to disclose their emotional responses to significant, negative life events. However, there was a subset of children who did not report on an event or ER strategies because, as they indicated, they were unwilling to discuss their emotional events with the researcher. Future research should include multi-informant methods to determine whether the observed relations between ER and behavioral functioning are maintained when both self-report and other-report measures are utilized.

## **Conclusions**

The findings from Project 2 shed important light on the links between ER and behavioral functioning, particularly in maltreated children across development. Maltreated children demonstrated poorer behavioral functioning relative to comparison children, and their behavioral functioning decreased significantly across age. Additionally, the present study found support for three primary classes of ER use: (1) a class of children who largely reported doing nothing to regulate their emotions (Disengagers), (2) a class of children who reported using mainly primary control strategies (Primary copers), and (3) a class of children who reported using secondary control strategies, namely secondary social support and distraction (Secondary copers). Overall, maltreated children were more likely to be classified as Disengagers relative to comparison

children who were more likely to be classified as Primary copers. Moreover, disengagement was associated with poorer behavioral functioning across age. These findings suggest that maltreated children are more prone to utilizing ineffective ER strategies, such as disengagement, and that these strategies, in turn, place them at risk for poor behavioral functioning.

## **CHAPTER 6: Summary and Conclusions**

Child maltreatment represents one of the gravest violations of child welfare and safety. In the United States alone, approximately 3 million reports of child abuse and neglect are received annually (CDC, 2011). Moreover, ample evidence indicates that maltreatment exposure leads to deleterious effects in every developmental domain, including social, emotional, and mental health functioning (Cunningham, Kliwer, & Garner, 2009; Kim & Cicchetti, 2010; Maughan & Cicchetti, 2002; Pears & Fisher, 2005; Robison et al., 2009; Rogosch, Cicchetti, & Aber, 1995; Shields & Cicchetti, 1998). For example, as many as 80 percent of former child maltreatment victims meet the diagnostic criteria for one or more mental health disorders (e.g., depression, anxiety, and suicide attempts) by the time they are 21 (Silverman, Reinherz, & Giaconia, 1996). These effects are pervasive and have been documented both early in development and across the lifespan. At the same time, not all children who endure maltreatment exhibit substantial problems or fall into the cycle of violence. Other characteristics, in the environment and within individuals, play crucial roles in affecting the trajectory of risk. The overarching goal of the present study was to examine ER as a core component that may account for these differences. Specifically, the present study (1) examined ER abilities in maltreated children and adolescents and compared their functioning to that of demographically-similar comparison youth, and (2) investigated the links between ER strategies and behavioral adjustment in maltreated and comparison children.

Overall, findings from the present study suggest that maltreated children differ significantly from comparison children both in the types of emotional events that they experience and the types of ER strategies that they use to cope with their emotions. In terms of emotional events, maltreated children reported experiencing significantly more psychologically intense events, including events related to their maltreatment and subsequent removal from home. Furthermore, maltreated children reported using disengagement and antisocial strategies when regulating their emotions, relative to comparison children, who reported more primary control strategies. The use of specific ER strategies, in turn, predicted children's behavioral functioning, such that the use of disengagement strategies (particularly doing nothing) was associated with poorer behavioral functioning across age.

Across the entire study, results seemed to become more robust with age. For example, the differences in ER strategies between maltreated and comparison children amplified across age. This effect was largely driven by increases in the use of certain ER strategies (e.g., secondary social support, distraction) across age in the comparison sample, whereas ER strategy use did not change with age for the maltreated children. Additional developmental trends were uncovered in the association between ER and behavioral functioning, such that the use of disengagement strategies was related to poorer behavioral functioning across age. Thus, the use of disengagement strategies seemed to be particularly maladaptive for adolescents relative to children, regardless of their maltreatment history.

Although additional research is needed to examine the developmental trajectory and causal direction in the links between ER and behavioral functioning, the present study has important theoretical and practical implications. Theoretically, the present study provides much-needed insight into the mechanisms underlying the development of ER uniting several, often

separate bodies of literature, including those concerning ER development in children, emotional functioning in maltreated children, and adolescent development. The present study also highlights the unique contributions of both quantitative and qualitative research methods. For example, the open-ended design of the ER narrative task allowed children to self-nominate the types of ER strategies that they use and, as a result, suggested that when confronted with intense, emotional events children tend to use more basic behavioral strategies than would be expected based on the extant literature. The present study also provides a novel investigation into developmental trends in ER by including a wide age range of maltreated and comparison children, particularly those transitioning to adolescence.

Practically, the present study has tremendous implications for the treatment and intervention of maltreated children and adolescents, who are among the most high-risk and vulnerable of all developmental populations (Cicchetti, Gabisan, & Barnett, 1991; Masten & Garmezy, 1985). Direct care providers responsible for treatment and intervention services provided to maltreated children are often called upon to (a) evaluate the functioning of the children, (b) manage their basic care needs, (c) help them cope with their maltreatment and removal, (d) ensure they are attending school, and (e) provide requisite medical and mental health services. Direct care providers also develop treatment or intervention plans that outline individual children's needs. To date, there are often minimal standards and no formal guidelines for developing these plans. Findings of the present study help inform treatment and intervention plans by highlighting the underlying role of ER in the relation between maltreatment and behavioral functioning, the importance of considering developmental stages (i.e., childhood v. adolescence) when designing and implementing interventions, and the negative consequences of using disengagement ER strategies. In fact, targeted interventions aimed at helping maltreated

adolescents utilize primary or secondary control strategies in place of disengagement or antisocial strategies might serve to improve behavioral functioning in these high-risk and vulnerable children.



## REFERENCES

- Akos, P., & Galassi, J. P. (2004). Middle and high school transitions as viewed by students, parents, and teachers. *Professional School Counseling, 7*, 212-221.
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*, 217-237.
- Alink, L. R., Cicchetti, D., Kim, J., & Rogosch, F. A. (2009). Mediating and moderating processes in the relation between maltreatment and psychopathology: Mother-child relationship quality and emotion regulation. *Journal of Abnormal Child Psychology, 37*, 831-843.
- Appel, A. E., & Holden, G. W. (1998). The co-occurrence of spouse and physical child abuse: A review and appraisal. *Journal of Family Psychology, 12*, 578-599.
- Barber, B. K., & Olsen, J. A. (2004). Assessing the transitions to middle and high school. *Journal of Adolescent Research, 19*, 3-30.
- Barnett, D., Manly, J. T., & Cicchetti, D. (1993). Defining child maltreatment: The interface between policy and research. *Child Abuse, Child Development, and Social Policy, 8*, 7-73.
- Bass, S., Shields, M. K., & Behrman, R. E. (2004). Children, families, and foster care: Analysis and recommendations. *The Future of Children, 14*, 5-29.
- Benner, A. D., & Graham, S. (2009). The transition to high school as a developmental process among multiethnic urban youth. *Child Development, 80*, 356-376.
- Betts, J., Gullone, E., & Allen, J. S. (2009). An examination of emotion regulation, temperament, and parenting style as potential predictors of adolescent depression risk status: A correlational study. *British Journal of Developmental Psychology, 27*, 473-485.

- Bohnert, A. M., Crnic, K. A., & Lim, K. G. (2003). Emotional competence and aggressive behavior in school-age children. *Journal of Abnormal Child Psychology*, *31*, 79-91.
- Bolger, K. E., & Patterson, C. J. (2001). Pathways from child maltreatment to internalizing problems: Perceptions of control as mediators and moderators. *Development and Psychopathology*, *13*, 913-940.
- Bonanno, G. A., Noll, J. G., Putnam, F. W., O'Neill, M., & Trickett, P. K. (2003). Predicting the willingness to disclose childhood sexual abuse from measures of repressive coping and dissociative tendencies. *Child Maltreatment*, *8*, 302-318.
- Brown, B. B., & Larson, J. (2004). Adolescents' relationships with peers. In *Handbook of Adolescent Psychology*, Second Edition (pp. 363-394). Hoboken, NJ US: John Wiley & Sons Inc.
- Burns, E. E., Fischer, S., Jackson, J. L., & Harding, H. G. (2012). Deficits in emotion regulation mediate the relationship between childhood abuse and later eating disorder symptoms. *Child Abuse & Neglect*, *36*, 32-39.
- Calkins, S. D. (1994). Origins and outcomes of individual differences in emotion regulation. *Monographs of the Society for Research in Child Development*, *59*, 53-72.
- Calkins, S. D., & Bell, K. L. (1999). Developmental transitions as windows to parental socialization of emotion. *Psychological Inquiry*, *10*, 368-372.
- Camras, L. A., Sachs-Alter, E., & Ribordy, S. C. (1996). Emotion understanding in maltreated children: Recognition of facial expressions and integration with other emotion cues. In M. Lewis & M. W. Sullivan (Eds). *Emotional development in atypical children* (pp. 203-225). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.

- Carstensen, L. L., Gottman, J. M., & Levenson, R. W. (1995). Emotional behavior in long-term marriage. *Psychology and Aging, 10*, 140-149.
- Chang, L., Schwartz, D., Dodge, K. A., & McBride-Chang, C. (2003). Harsh parenting in relation to child emotion regulation and aggression. *Journal of Family Psychology, 17*, 598-606.
- Child Maltreatment (2011). In *Centers for Disease Control and Prevention* online. Retrieved from <http://www.cdc.gov/ViolencePrevention/childmaltreatment/index.html>.
- Cicchetti, D., Ackerman, B. P., & Izard, C. E. (1995). Emotions and emotion regulation in developmental psychopathology. *Development and Psychopathology, 7*, 1-10.
- Cicchetti, D., & Rogosch, F. A. (1997). The role of self-organization in the promotion of resilience in maltreated children. *Development and Psychopathology, 9*, 797-815.
- Cicchetti, D., & Rogosch, F. A. (2001). The impact of child maltreatment and psychopathology on neuroendocrine functioning. *Development and Psychopathology, 13*, 783-804.
- Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: problems, progress, and potential in theory and research. *Psychological Bulletin, 127*, 87-127.
- Compas, B. E., Malcarne, V. L., & Fondacaro, K. M. (1988). Coping with stressful events in older children and young adolescents. *Journal of Consulting and Clinical Psychology, 56*, 405-411.
- Connor-Smith, J. K., Compas, B. E., Wadsworth, M. E., Thomsen, A. H., & Saltzman, H. (2000). Responses to stress in adolescence: Measurement of coping and involuntary stress responses. *Journal of Consulting and Clinical Psychology, 68*, 976-992.

- Cooper, M. L., Shaver, P. R., & Collins, N. L. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology, 74*, 1380-1397.
- Costello, E. J., Erkanli, A., Fairbank, J. A., & Angold, A. (2002). The prevalence of potentially traumatic events in childhood and adolescence. *Journal of Traumatic Stress, 15*, 99-112.
- Cox, C. E., Kotch, J. B., & Everson, M. D. (2003). A longitudinal study of modifying influences in the relationship between domestic violence and child maltreatment. *Journal of Family Violence, 18*, 5-17.
- Cunningham, J. N., Kliewer, W., & Garner, P. W. (2009). Emotion socialization, child emotion understanding and regulation, and adjustment in urban African American families: Differential associations across child gender. *Development and Psychopathology, 21*, 261-283.
- Cutajar, M. C., Mullen, P. E., Ogloff, J. R., Thomas, S. D., Wells, D. L., & Spataro, J. (2010). Psychopathology in a large cohort of sexually abused children followed up to 43 years. *Child Abuse & Neglect, 34*, 813-822.
- Dahl, R. E., & Gunnar, M. R. (2009). Heightened stress responsiveness and emotional reactivity during pubertal maturation: Implications for psychopathology. *Development and Psychopathology, 21*, 1-6.
- Davies, P. T., & Cummings, E. M. (1994). Marital conflict and child adjustment: An emotional security hypothesis. *Psychological Bulletin, 116*, 387-411.
- Davis, E. L., Levine, L. J., Lench, H. C., & Quas, J. A. (2010). Metacognitive emotion regulation: Children's awareness that changing thoughts and goals can alleviate negative emotions. *Emotion, 10*, 498-510.

- Deater-Deckard, K., Dodge, K.A., Bates, J.E., & Pettit, G.S. (1998). Multiple risk factors in the development of externalizing behavior problems: Group and individual differences. *Development and Psychopathology, 10*, 469–493.
- Denham, S. A., Mitchell-Copeland, J., Strandberg, K., Auerbach, S., & Blair, K. (1997). Parental contributions to preschoolers' emotional competence: Direct and indirect effects. *Motivation and Emotion, 21*, 65-86.
- DePrince, A. P., Weinzierl, K. M., & Combs, M. D. (2009). Executive function performance and trauma exposure in a community sample of children. *Child Abuse & Neglect, 33*, 353-361.
- Dierkhising, C. B., Geiger, J. M., Hurst, T. E., Panlilio, C., & Schelbe, L. (2015). Preventing adolescent maltreatment: A focus on child welfare, juvenile justice, and sexual exploitation. In *Advances in Child Abuse Prevention Knowledge* (pp. 43-65). Springer International Publishing.
- During, S. M., & McMahon, R. J. (1991). Recognition of emotional facial expressions by abusive mothers and their children. *Journal of Clinical Child and Adolescent Psychology, 20*, 132-139
- Eisen, M. L., Qin, J., Goodman, G. S., & Davis, S. L. (2002). Memory and suggestibility in maltreated children: Age, stress arousal, dissociation, and psychopathology. *Journal of Experimental Child Psychology, 83*, 167-212.
- Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental socialization of emotion. *Psychological Inquiry, 9*, 241-273.
- Eisenberg, N., Gershoff, E. T., Fabes, R. A., Shepard, S. A., Cumberland, A. J., Losoya, S. H., ... & Murphy, B. C. (2001). Mother's emotional expressivity and children's behavior

- problems and social competence: Mediation through children's regulation. *Developmental Psychology*, 37, 475-409.
- Eisenberg, N., Sadovsky, A., & Spinrad, T. L. (2005). Associations of emotion-related regulation with language skills, emotion knowledge, and academic outcomes. *New Directions for Child and Adolescent Development*, 109, 109-118.
- Ehring, T., Tuschen-Caffier, B., Schnülle, J., Fischer, S., & Gross, J. J. (2010). Emotion regulation and vulnerability to depression: Spontaneous versus instructed use of emotion suppression and reappraisal. *Emotion*, 10, 563-572.
- Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2008). Exposure to childhood sexual and physical abuse and adjustment in early adulthood. *Child Abuse & Neglect*, 32, 607-619.
- Finkelhor, D., Turner, H., Hamby, S. L., & Ormrod, R. (2011). Polyvictimization: Children's exposure to multiple types of violence, crime, and abuse. *National Survey of Children's Exposure to Violence. OJJDP Juvenile Justice Bulletin - NCJ235504* (pgs. 1-12). Washington, DC: US Government Printing Office.
- Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology*, 46, 839-852.
- Folman, R. D. (1998). "I Was Taken" How children experience removal from their parents preliminary to placement into foster care. *Adoption Quarterly*, 2, 7-35.
- Forbes, E. E., Ryan, N. D., Philips, M. L., Manuck, S. B., Worthman, C. M., ... & Dahl, R. E. (2010). Healthy adolescents' neural response to reward: Associations with puberty, positive affect, and depressive symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry*, 49, 162-172.

- Ford, J. D., Chapman, J., Mack, J. M., & Pearson, G. (2006). Pathways from traumatic child victimization to delinquency: Implications for juvenile and permanency court proceedings and decisions. *Juvenile and Family Court Journal*, *57*, 13-26.
- Ford, J. D., Fraleigh, L. A., & Connor, D. F. (2009). Child abuse and aggression among seriously emotionally disturbed children. *Journal of Clinical Child & Adolescent Psychology*, *39*, 25-34.
- Fosco, G. M., & Grych, J. H. (2010). Adolescent triangulation into parental conflicts: Longitudinal implications for appraisals and adolescent-parent relations. *Journal of Marriage and Family*, *72*, 254-266.
- Frey, A., Ruchkin, V., Martin, A., & Schwab-Stone, M. (2009). Adolescents in transition: School and family characteristics in the development of violent behaviors entering high school. *Child Psychiatry and Human Development*, *40*, 1-13.
- Garnefski, N., Rieffe, C., Jellesma, F., Terwogt, M. M., & Kraaij, V. (2007). Cognitive emotion regulation strategies and emotional problems in 9–11-year-old children. *European Child & Adolescent Psychiatry*, *16*, 1-9.
- Ge, X., Lorenz, F. O., Conger, R. D., Elder, G. H., & Simons, R. L. (1994). Trajectories of stressful life events and depressive symptoms during adolescence. *Developmental Psychology*, *30*, 467-483.
- Gilbert, R., Widom, C. S., Browne, K., Fergusson, D., Webb, E., & Janson, S. (2009). Burden and consequences of child maltreatment in high-income countries. *The Lancet*, *373*, 68-81.

- Gilliom, M., Shaw, D. S., Beck, J. E., Schonberg, M. A., & Lukon, J. L. (2002). Anger regulation in disadvantaged preschool boys: Strategies, antecedents, and the development of self-control. *Developmental Psychology, 38*, 222-235.
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38*, 581-586.
- Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire (SDQ). *Journal of the American Academy of Child and Adolescent Psychiatry, 40*, 1337-1345.
- Gordon, B. N., Ornstein, P. A., Clubb, P. A., Nida, R. E., & Baker-Ward, L. (1991, October). *Visiting the pediatrician: Long-term retention and forgetting*. Paper presented at the annual meeting of the Psychonomic Society, San Francisco, CA.
- Gordis, E. B., Feres, N., Olezeski, C. L., Rabkin, A. N., & Trickett, P. K. (2010). Skin conductance reactivity and respiratory sinus arrhythmia among maltreated and comparison youth: Relations with aggressive behavior. *Journal of Pediatric Psychology, 35*, 547-558.
- Gottman, J. M., Guralnick, M. J., Wilson, B., Swanson, C. C., Murraray, J. D. (1997). What should be the focus of emotion regulation in children? A nonlinear dynamic mathematical model of children's peer interaction in groups. *Development and Psychopathology, 9*, 421-452.
- Gottman, J. M., & Katz, L. F. (1989). Effects of marital discord on young children's peer interaction and health. *Developmental Psychology, 25*, 373-381.



- Greenberg, M.T., Speltz, M.L., DeKlyen, M., & Jones, K. (2001). Correlates of clinic referral for early conduct problems: Variable- and person-oriented approaches. *Development and Psychopathology, 13*, 255–276.
- Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2*, 271-299.
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*, 348-362.
- Gross, J. J., & Muñoz, R. F. (1995). Emotion regulation and mental health. *Clinical Psychology: Science and Practice, 2*, 151-164.
- Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. *Handbook of Emotion Regulation, 3*, 24-73.
- Gullone, E., & Taffe, J. (2012). The Emotion Regulation Questionnaire for Children and Adolescents (ERQ–CA): A psychometric evaluation. *Psychological Assessment, 24*, 409-417.
- Hart, J., Gunnar, M., & Cicchetti, D. (1996). Altered neuroendocrine activity in maltreated children related to symptoms of depression. *Development and Psychopathology, 8*, 201-214.
- Howe, M. L., Cicchetti, D., Toth, S. L., & Cerrito, B. M. (2004). True and false memories in maltreated children. *Child Development, 75*, 1402-1417.
- Howes, C., & Segal, J. (1993). Children's relationships with alternative caregivers: The special case of maltreated children removed from their homes. *Journal of Applied Developmental Psychology, 14*, 71-81.

- Jones, D.J., Forehand, R., Brody, G., & Armistead, L. (2002). Psychosocial adjustment of African-American children in single-mother families: A test of three risk models. *Journal of Marriage and Family, 64*, 105–115.
- Joseph, D. L., & Newman, D. A. (2010). Emotional intelligence: An integrative meta-analysis and cascading model. *Journal of Applied Psychology, 95*, 54-78.
- Kashdan, T. B., Barrios, V., Forsyth, J. P., & Steger, M. F. (2006). Experiential avoidance as a generalized psychological vulnerability: Comparisons with coping and emotion regulation strategies. *Behaviour Research and Therapy, 44*, 1301-1320.
- Kim, J., & Cicchetti, D. (2010). Longitudinal pathways linking child maltreatment, emotion regulation, peer relations, and psychopathology. *Journal of Child Psychology and Psychiatry, 51*, 706-716.
- Kim-Cohen, J., Caspi, A., Taylor, A., Williams, B., Newcombe, R., Craig, I. W., & Moffitt, T. E. (2006). MAOA, maltreatment, and gene–environment interaction predicting children's mental health: New evidence and a meta-analysis. *Molecular Psychiatry, 11*, 903-913.
- Kim-Spoon, J., Cicchetti, D., & Rogosch, F. A. (2013). A longitudinal study of emotion regulation, emotion lability-negativity, and internalizing symptomatology in maltreated and nonmaltreated children. *Child Development, 84*, 512-527.
- Lamb, M. E., Sternberg, K. J., & Esplin, P. W. (2000). Effects of age and delay on the amount of information provided by alleged sex abuse victims in investigative interviews. *Child Development, 71*, 1586-1596.
- Lansford, J. E., Dodge, K. A., Pettit, G. S., Bates, J. E., Crozier, J., & Kaplow, J. (2002). A 12-year prospective study of the long-term effects of early child physical maltreatment on

- psychological, behavioral, and academic problems in adolescence. *Archives of Pediatrics & Adolescent Medicine*, *156*, 824-830.
- Larson, R., & Ham, M. (1993). Stress and "storm and stress" in early adolescence: The relationship of negative events with dysphoric affect. *Developmental Psychology*, *29*, 130-140.
- Laursen, B., & Collins, W. A. (1994). Interpersonal conflict during adolescence. *Psychological Bulletin*, *115*, 197-209.
- Laye-Gindhu, A., & Schonert-Reichl, K. A. (2005). Nonsuicidal self-harm among community adolescents: Understanding the "whats" and "whys" of self-harm. *Journal of Youth and Adolescence*, *34*, 447-457.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.
- Leist, T., & Dadds, M. R. (2009). Adolescents' ability to read different emotional faces relates to their history of maltreatment and type of psychopathology. *Clinical Child Psychology and Psychiatry*, *14*, 237-250.
- London, K., Bruck, M., Ceci, S. J., & Shuman, D. W. (2005). Disclosure of child sexual abuse: What does the research tell us about the ways that children tell?. *Psychology, Public Policy, and Law*, *11*, 194-226.
- Lynch, M., & Cicchetti, D. (1998). An ecological-transactional analysis of children and contexts: The longitudinal interplay among child maltreatment, community violence, and children's symptomatology. *Development and Psychopathology*, *10*, 235-257.
- MacMillan, H. L., & Munn, C. (2001). The sequelae of child maltreatment. *Current Opinion in Psychiatry*, *14*, 325-331.

- Main, M., & George, C. (1985). Responses of abused and disadvantaged toddlers to distress in agemates: A study in the day care setting. *Developmental Psychology, 21*, 407-412.
- Maughan, A., & Cicchetti, D. (2002). Impact of child maltreatment and interadult violence on children's emotion regulation abilities and socioemotional adjustment. *Child Development, 73*, 1525-1542.
- Maughan, A., Cicchetti, D., Toth, S. L., & Rogosch, F. A. (2007). Early-occurring maternal depression and maternal negativity in predicting young children's emotion regulation and socioemotional difficulties. *Journal of Abnormal Child Psychology, 35*, 685-703.
- McRae, K., Gross, J. J., Weber, J., Robertson, E. R., Sokol-Hessner, P., Ray, R. D., ... & Ochsner, K. N. (2012). The development of emotion regulation: An fMRI study of cognitive reappraisal in children, adolescents and young adults. *Social Cognitive and Affective Neuroscience, 7*, 11-22.
- McKibben, L., De Vos, E., & Newberger, E. H. (1989). Victimization of mothers of abused children: A controlled study. *Pediatrics, 84*, 531-535.
- Melinder, A., Baugerud, G. A., Ovenstad, K. S., & Goodman, G. S. (2013). Children's memories of removal: A test of attachment theory. *Journal of Traumatic Stress, 26*, 125-133.
- Morling, B., & Evered, S. (2006). Secondary control reviewed and defined. *Psychological Bulletin, 132*, 269-296.
- Nelson, E. E., Leibenluft, E., McClure, E., Pine, D. S. (2005). The social re-orientation of adolescence: A neuroscience perspective on the process and its relation to psychopathology. *Psychological Medicine, 35*, 163-174.
- Paikoff, R. L., & Brooks-Gunn, J. (1991). Do parent-child relationships change during puberty?. *Psychological Bulletin, 110*, 47-66.

- Parke, R. D. (1994). Progress, paradigms, and unresolved problems: A commentary on recent advances in our understanding of children's emotions. *Merrill-Palmer Quarterly*, *40*, 157-169.
- Parke, R. D., & Clarke-Stewart, K. A. (2003). The effects of parental incarceration on children. In J. Travis & M. Waul (Eds.), *Prisoners once removed: The impact of incarceration and reentry on children, families, and communities* (pp. 189-232) Washington, DC: Urban Inst. Press.
- Parker, S. W., & Nelson, C. A. (2005). The impact of early institutional rearing on the ability to discriminate facial expressions of emotion: An event-related potential study. *Child Development*, *76*, 54-72.
- Pears, K., & Fisher, P. A. (2005). Developmental, cognitive, and neuropsychological functioning in preschool-aged foster children: Associations with prior maltreatment and placement history. *Journal of Developmental and Behavioral Pediatrics*, *26*, 112-122.
- Pollak, S. D., Cicchetti, D., Hornung, K., & Reed, A. (2000). Recognizing emotion in faces: Developmental effects of child abuse and neglect. *Developmental Psychology*, *36*, 679-688.
- Quas, J. A., Wallin, A. R., Horwitz, B., Davis, E., & Lyon, T. (2009). Maltreated children's understanding of and emotional reactions to dependency court involvement. *Behavioral Sciences and the Law*, *27*, 97-117.
- Rafnsson, F. D., Johnson, F. H., & Windle, M. (2006). Coping strategies, stressful life events, problem behaviors, and depressed affect. *Anxiety, Stress and Coping: An International Journal*, *19*, 241-257.

- Raine, A., Dodge, K., Loeber, R., Gatzke-Kopp, L., Lynam, D., Reynolds, C., ... & Liu, J. (2006). The Reactive–Proactive Aggression Questionnaire: Differential correlates of reactive and proactive aggression in adolescent boys. *Aggressive Behavior, 32*, 159-171.
- Reef, J., Diamantopoulou, S., van Meurs, I., Verhulst, F. C., & van der Ende, J. (2011). Developmental trajectories of child to adolescent externalizing behavior and adult DSM-IV disorder: Results of a 24-year longitudinal study. *Social Psychiatry and Psychiatric Epidemiology, 46*, 1233-1241.
- Repetti, R. L., Taylor, S. E., & Seeman, T. E. (2002). Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin, 128*, 330-366.
- Robison, L. R., Sheffield Morris, A., Heller, S. S., Scheeringa, M. S., & Boris, N. W. (2009). Relations between emotion regulation, parenting, and psychopathology in young maltreated children in out of home care. *Journal of Child and Family Studies, 18*, 421-434.
- Rogosch, F. A., Cicchetti, D., & Aber, J. L. (1995). The role of child maltreatment in early deviations in cognitive and affective processing abilities and later peer relationship problems. *Development and Psychopathology, 7*, 591-610.
- Romens, S. E., & Pollak, S. D. (2012). Emotion regulation predicts attention bias in maltreated children at-risk for depression. *Journal of Child Psychology and Psychiatry, 53*, 120-127.
- Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology, 42*, 5-37.

- Rudolph, K. D., & Hammen, C. (1999). Age and gender as determinants of stress exposure, generation, and reactions in youngsters: A transactional perspective. *Child Development, 70*, 660-677.
- Rudolph, K. D., & Heller, T. L. (1997). Interpersonal problem solving, externalizing behavior, and social competence in preschoolers: A knowledge-performance discrepancy? *Journal of Applied Developmental Psychology, 18*, 107-117.
- Rudolph, K. D., Hammen, C., & Burge, D. (1995). Cognitive representations of self, family, and peers in school-age children: Links with social competence and sociometric status. *Child Development, 66*, 1385-1402.
- Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M.W. Kent & J.E. Rolf (Eds.), *Primary prevention of psychopathology, Vol.3: Social competence in children* (pp. 49–74). Hanover, NH: University of New England Press.
- Sacks, V., Murphey, D., & Moore, K. (2014). *Adverse childhood experiences: National and state-level prevalence*. Research Brief. Child Trends. Publ. No. 2014-28, Bethesda.
- Salovey, P., Rothman, A. J., Detweiler, J. B., & Steward, W. T. (2000). Emotional states and physical health. *American Psychologist, 55*, 110-121.
- Sameroff, A.J. (2000). Dialectical processes in developmental psychopathology. In A. Sameroff, M. Lewis, & S. Miller (Eds.), *Handbook of developmental psychopathology* (2nd edn, pp. 23–40). New York: Kluwer Academic/Plenum Publishers.
- Scheier, M. F., Weintraub, J. K., & Carver, C. S. (1986). Coping with stress: Divergent strategies of optimists and pessimists. *Journal of Personality and Social Psychology, 51*, 1257-1264.
- Selye, H. (1956). *The stress of life*. New York, NY, US: McGraw-Hill.

- Sheffield Morris, A., Silk, J. S., Morris, M. D. S., Steinberg, L., & Aucoin, K. J. (2011). The influence of mother-child emotion regulation strategies on children's expression of anger and sadness. *Developmental Psychology, 47*, 213-225.
- Sheppes, G., Scheibe, S., Suri, G., & Gross, J. J. (2011). Emotion-regulation choice. *Psychological Science, 22*, 1391-1396.
- Shields, A., & Cicchetti, D. (1998). Reactive aggression among maltreated children: The contributions of attention and emotion dysregulation. *Journal of Clinical Child Psychology, 27*, 381-395.
- Shields, A. M., Cicchetti, D., & Ryan, R. M. (1994). The development of emotional and behavioral self-regulation and social competence among maltreated school-age children. *Development and Psychopathology, 6*, 57-75.
- Shipman, K. L., & Zeman, J. (2001). Socialization of children's emotion regulation in mother-child dyads: A developmental psychopathology perspective. *Development and Psychopathology, 13*, 317-336.
- Shulman, S., & Scharf, M. (2000). Adolescent romantic behaviors and perceptions: Age-and gender-related differences, and links with family and peer relationships. *Journal of Research on Adolescence, 10*, 99-118.
- Siener, S., & Kerns, K. A. (2012). Emotion regulation and depressive symptoms in preadolescence. *Child Psychiatry and Human Development, 43*, 414-430.
- Silk, J. S., Steinberg, L., & Morris, A. S. (2003). Adolescents' emotion regulation in daily life: Links to depressive symptoms and problem behavior. *Child Development, 74*, 1869-1880.



- Silverman, A. B., Reinherz, H. Z., & Giaconia, R. M. (1996). The long-term sequelae of child and adolescent abuse: A longitudinal community study. *Child Abuse and Neglect, 20*, 709-723.
- Smetana, J. G. (1995). Parenting styles and conceptions of parental authority during adolescence. *Child Development, 66*, 299-316.
- Smetana, J. G., Yau, J., Restrepo, A., & Braeges, J. L. (1991). Adolescent-parent conflict in married and divorced families. *Developmental Psychology, 27*, 1000-1010.
- Southam-Gerow, M. A., & Kendall, P. C. (2002). Emotion regulation and understanding: Implications for child psychopathology and therapy. *Clinical Psychology Review, 22*, 189-222.
- Spaccarelli, S. (1994). Stress, appraisal, and coping in child sexual abuse: A theoretical and empirical review. *Psychological Bulletin, 116*, 340-362.
- Steinberg, L. (2001). We know some things: Parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11*, 1-19.
- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences, 9*, 69-74.
- Sternberg, K. J., Lamb, M. E., Greenbaum, C., Cicchetti, D., Dawud, S., Cortes, R. M., ... & Lorey, F. (1993). Effects of domestic violence on children's behavior problems and depression. *Developmental Psychology, 29*, 44-52.
- Tartas, V. (2001). The development of systems of conventional time: A study of the appropriation of temporal locations by four-to-ten-year old children. *European Journal of Psychology of Education, 16*, 197-208.

- Taylor, L. K., & Weems, C. F. (2009). What do youth report as a traumatic event? Toward a developmentally informed classification of traumatic stressors. *Psychological Trauma: Theory, Research, Practice, and Policy, 1*, 91-106.
- Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research on Child Development, 59*, 24-52.
- Thompson, R. A. (2001). Childhood anxiety disorders from the perspective of emotion regulation and attachment. In M. W. Vasey & M. R. Dadds (Eds.), *The developmental psychopathology of anxiety* (pp. 160–182). New York: Oxford University Press.
- Thompson, R. A., & Goodman, M. (2009). Development of self, relationships, and socioemotional competence: Foundations for early school success. In O.A. Barbarin & B. H. Wasik (Eds.), *Handbook of Child Development and Early Education: Research to Practice* (pp. 147-171). New York, NY, US: Guilford Press.
- Trickett, P. K., Noll, J. G., & Putnam, F. W. (2011). The impact of sexual abuse on female development: Lessons from a multigenerational, longitudinal research study. *Development and Psychopathology, 23*, 453-476.
- Thurber, C. A., & Weisz, J. R. (1997). " You can try or you can just give up": the impact of perceived control and coping style on childhood homesickness. *Developmental Psychology, 33*, 508-517.
- Van Doorn, M. D., Branje, S. J., & Meeus, W. H. (2011). Developmental changes in conflict resolution styles in parent–adolescent relationships: A four-wave longitudinal study. *Journal of Youth and Adolescence, 40*, 97-107.
- Whitted, K. S., Delavega, E., & Lennon-Dearing, R. (2013). The youngest victims of violence: examining the mental health needs of young children who are involved in the child

- welfare and juvenile justice systems. *Child and Adolescent Social Work Journal*, 30, 181-195.
- Widom, C. S. (1999). Posttraumatic stress disorder in abused and neglected children grown up. *American Journal of Psychiatry*, 156, 1223-1229.
- Williams, S., Anderson, J., McGee, R., & Silva, P.A. (1990). Risk factors for behavioral and emotional disorder in preadolescent children. *Journal of the American Academy of Child and Adolescent Psychiatry*, 29, 413-419.
- Windle, M., & Windle, R. C. (1996). Coping strategies, drinking motives, and stressful life events among middle adolescents: Associations with emotional and behavioral problems and with academic functioning. *Journal of Abnormal Psychology*, 105, 551-560.
- Windle, M., & Windle, R. C. (2001). Depressive symptoms and cigarette smoking among middle adolescents: Prospective associations and intrapersonal and interpersonal influences. *Journal of Consulting and Clinical Psychology*, 69, 215-226.
- Wise, L. A., Zierler, S., Krieger, N., & Harlow, B. L. (2001). Adult onset of major depressive disorder in relation to early life violent victimization: A case-control study. *Lancet*, 358, 881-887.
- Young, S. E., Corley, R. P., Stallings, M. C., Rhee, S. H., Crowley, T. J., & Hewitt, J. K. (2002). Substance use, abuse and dependence in adolescence: prevalence, symptom profiles and correlates. *Drug and Alcohol Dependence*, 68, 309-322.
- Zeman, J., Cassano, M., Perry-Parrish, C., & Stegall, S. (2006). Emotion regulation in children and adolescents. *Journal of Developmental and Behavioral Pediatrics*, 27, 155-168.

- Zeman, J., & Shipman, K. (1997). Social-contextual influences on expectancies for managing anger and sadness: The transition from middle childhood to adolescence. *Developmental Psychology, 33*, 917-924.
- Zeman, J., & Shipman, K. (1996). Children's expression of negative affect: Reasons and methods. *Developmental Psychology, 32*, 842-849.
- Zeman, J., Shipman, K., & Penza-Clyve, S. (2001). Development and initial validation of the Children's Sadness Management Scale. *Journal of Nonverbal Behavior, 25*, 187-205.
- Zeman, J., Shipman, K., & Suveg, C. (2002). Anger and sadness regulation: Predictions to internalizing and externalizing symptoms in children. *Journal of Clinical Child and Adolescent Psychology, 31*, 393-398.

## APPENDIX: Example Descriptions of Sad and Mad Events

### Maltreated Group:

“Last Monday, my ex-girlfriend died of an overdose. This Thursday is her funeral. She ran away from her group home, because they were going to send her to rehab. She went a little crazy and died from an overdose with a 45-year-old man.” (*Sad, High Psychological Intensity*)

“I went to the beach with a friend and his dad said he would get me a toy from Target, but he didn’t. Then he said he would get me something for me next time I come over, but he didn’t.” (*Sad, Low Psychological Intensity*)

“They were trying to put me in a mental hospital. I was trying to drink bleach, but didn’t want anyone to find out, but they did and the cops were coming and I was getting really bad because they wouldn’t let me drink bleach or cut myself. The cops told me to relax and I got really mad.” (*Mad, High Psychological Intensity*)

“I was playing football and some kid kept tackling me after the play was dead! I didn’t really know him. I just let it slide the first couple of times. After he kept doing it, on the last play he jumped on me at the end of the play and I hit him in the face.” (*Mad, Low Psychological Intensity*)

### **Comparison Group:**

“When a close friend of mine died in a car accident. I don’t know how to explain it. It just shocked me.” (*Sad, High Psychological Intensity*)

“One time when my friend and I got in a fight and I thought I was going to lose and then she started playing with me and we got together again. It was at school and she was my best friend. My friend and I thought we were gonna lose each other but we figured it out by talking.” (*Sad, Low Psychological Intensity*)

“When I got kicked out of the house because my dad found out I smoked weed, so I left to my friend’s house and stayed there for two days. When I came back home I punched my dad.” (*Mad, High Psychological Intensity*)

“Probably when I was not on the best terms with my parents, when I got, like, bad grades. I felt like they were over reacting at the time and they were kind of picking on me. I just felt like I wanted to do what I wanted to do and my parents were overreacting and I would fix it later.” (*Mad, Low Psychological Intensity*)