MORE AND LESS GUILT-PRONE CHILDREN'S DISTRESS CHANGES DIFFERENTLY WHEN THEY NARRATE HARMDOINGS, ACCORDING TO SOME BUT NOT ALL INDICATORS OF DISTRESS

by

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A dissertation submitted to the faculty of
The University of Utah
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

Department of Psychology

The University of Utah

May 2018

The University of Utah Graduate School

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ABSTRACT

The study's goals were twofold: (1) to examine how children's and adolescents' guilt-proneness relates to the intensity and nature of their overall distress, and changes in their distress, when they narrate experiences of hurting others; and (2) to identify how these relations vary under distinct fault conditions and across childhood and adolescence. Participants were 116 participants, evenly divided into three age groups (ages 5, 9, and 16) and by sex. Results suggest that when more guilt-prone youth narrate harmdoing experiences, they feel more current overall distress than less guilt-prone youth, but not more past distress. Contrary to expectations, these relations do not vary between youths' narration of "it was my fault" and "it was not my fault" harmdoing experiences, and do not vary for younger and older youth. Additional analyses show that more and less guilt-prone youth have different patterns of change in their current distress over the course of their narratives about harmdoings, and these changes vary by fault condition. More guilt-prone children's distress is temporally stable during their narration of my-fault harm, and their distress changes in ways that are unlikely to last when they narrate not-my-fault harm, whereas less guilt-prone children's distress decreases steadily over the course of their storytelling under both conditions. Since current and unchanging feelings of distress may interfere with narrative processes whereby children learn from harmdoings, this study's findings suggest that more guilt-prone youth of all ages may construct understandings of their past harmdoings that are problematic for their moral development.

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INTRODUCTION

Children's moral development unfolds through multiple processes, including when they construct narrative accounts of their morally laden experiences. One way that people make sense of important experiences in their lives is by forming stories about them. The particular stories people form shape their future development (McLean, Pasupathi, & Pals, 2007). As applied to the moral domain, children create narratives about morally laden events, such as times they hurt others. Through the act of narrating these experiences, they construct understandings about themselves, others, and the moral world. These understandings, in turn, influence their moral development moving forward (Pasupathi, Wainryb, Bourne, & Posada, 2017). These processes—how selves create stories and how stories create future selves—likely unfold differently when youth are more versus less distressed during their storytelling. Theory and evidence suggest that children who feel intensely distressed when they narrate negative events construct stories that are self-focused and unresolved, have lower prospective well-being, and are less likely to consider broad implications of their experiences that are adaptive for their future development (e.g., Fivush, Marin, Crawford, Reynolds, & Brewin, 2007; Kross, Duckworth, Ayduk, Tsukayama, & Mischel, 2011; Wainryb & Recchia, 2014). As such, feeling intense and immersive forms of distress during their narration of harmdoings may have detrimental effects on how children feel about themselves, others, and the socio-moral world more generally. Thus, documenting which kinds of children feel more and

less distressed when they narrate harmdoing experiences would contribute to our understanding of their moral development.

Although a variety of dispositional characteristics may lead children and adolescents to be more versus less distressed during their narration of harmdoings, in this dissertation, I explore the role that their guilt-proneness plays. More guilt-prone children have a propensity to feel guilty across a variety of experiences, particularly those involving harm of others (Tangney & Tracy, 2012), and this might extend to when they narrate harmdoings (Leith & Baumeister, 1998). However, not all harmdoings are thought about in the same way. The relations between children's guilt-proneness and their distress during narration may be more or less pronounced depending on how children think about their fault, and depending on the age of the child narrating. Lastly, people's distress changes over the course of telling narratives. The best pattern of change in distress—in terms increasing the likelihood that narratives will contain growth-promoting meanings and lead to higher well-being moving forward—is likely steady declines in distress during narration. Distress may change over the course of narration differently for more and less guilt-prone youth. These youth may also experience different forms of distress, such as distressing feelings that are more intense, immediate, and intrusive versus those that are felt with some distance and as an object of reflection (Kross et al., 2011). This dissertation addressed these issues by examining how children's and adolescents' guilt-proneness relates to their distress when they narrate harmdoing experiences under distinct fault conditions.

Why is it important to understand which kinds of children are more distressed when they narrate harmdoings?

During experiences when children cause harm to others, it may be understandable for them to feel at least some distress. Children's empathy and concern for the victim's distress may evoke their own feelings of guilt, shame, remorse, or distress (Hoffman, 2000). However, when they feel intense distress *during their narration* of past harmdoings, it is likely less adaptive. In general, people's distress is lower when they narrate negative experiences than during the original experiences (Pasupathi, 2003). Such decreases in distress are theorized to help children reflect on and construct meanings of their interpersonal conflicts. However, children vary in how dramatically their distress decreases, and not all distress is the same. Distress that is felt with a sense of distance is theorized to be more adaptive than distress that is felt as "hot" and immersive (Kross et al., 2011). Research and theory suggest that feeling intense, current distress during narration of harmdoings may be problematic in a few ways.

Children with intense and immediate feelings of distress during their narration of harmdoings may narrate these experiences in maladaptive ways, have low well-being, and feel badly when they are reminded of the experiences. First, being distressed during the narration of harmdoings may lead children to elaborate in their narratives on their own perspective rather than to the victim's perspective and suffering (Eisenberg, Spinrad, & Morris, 2013). Narrators who are distressed may also struggle to form productive resolutions because events feel ongoing as long as the emotions associated with those events are being relived. Children may also wrestle against their intense feelings of distress during narration of harmdoings by constructing meanings that are problematic for

their developing sense of moral agency. For instance, they may turn themselves into the victims even though it was their actions that hurt others (Wainryb & Recchia, 2014). Along with forming problematic meanings in their narratives, children who feel intensely distressed during their narration of negative events may, over time, develop social and emotional difficulties. For example, one study demonstrated that children who focused on negative evaluations, problems, and explanations in their narrative accounts—features likely associated with feeling more intense distress during narration—had more anxiety, depression, and difficulties 2 months later than children who did not have such a negative focus during narration (Fivush et al., 2007). As long as harmdoing experiences are emotionally unresolved, every time a child is reminded of these experiences—perhaps by seeing the peer they hurt—their distressing feelings might arise again. And lastly, a possible sequela of feeling intense distress during narration is children choosing to **not** narrate other similar experiences to avoid the discomfort of distressing feelings. People sometimes choose to keep experiences secret when they feel guilty or ashamed (Rimé, Finkenauer, Luminet, Zech, & Philippot, 1998). Given that the act of narrating experiences provides opportunities for children to change how they think and feel about experiences—particularly when experiences are narrated to skilled listeners—avoiding talking about harmdoings could also be detrimental to children's future development. Because intense distress during narration of harmdoing experiences is detrimental for a variety of reasons, this study's goal is to document which factors relate to children feeling more or less distressed when they do so.

What is distress and how is it manifested during narration?

Distress is an "umbrella term to refer to unpleasant, upsetting, or negative moods or emotions" (Baumeister, Zell, & Tice, 2007, p. 422). Since it is a subjective experience and emotions involve multiple, loosely coupled components (Mauss, Levenson, McCarter, & Wilhelm, 2005; Scherer, 2009), distress can be manifested in a variety of ways. Distress is often evident in what people say (verbal indicators), and how they say it (nonverbal vocal indicators). How distress is manifested sheds light on the nature of the distress being felt. Distress varies in its intensity, its form, and in how it changes over time. Two forms of distress are distress that is felt with some distance versus distress that is currently felt. Kross and colleagues (2011) have related these forms to the type of perspective that people use to analyze their past negative feelings. People can "self-immerse" when they recall their past distress, which gives rise to reliving those feelings in an immediate way—from a close, "insider" perspective. Alternatively, people can assume a "self-distanced" perspective, reflecting on past distress from a more objective, "outsider" position. Distress is likely to be most problematic during narration when it is intense, is currently felt, and lasts over the course of the entire storytelling.

Previous studies in the moral development literature have examined the contents of children's narratives of their harm doings, and these studies show that children sometimes explicitly reference their own negative feelings (e.g., Wainryb, Brehl, & Matwin, 2005; Wainryb, Komolova, & Brehl, 2014). For instance, in Wainryb and Recchia (2012), an adolescent participant said, "I felt so bad…I remember she started crying, and that's when I felt really bad" (p. 19). Presumably, when people felt or feel more intense distress, they are likely to reference their own negative emotions more

frequently in their narratives. References can also shed light on the nature of the distress being felt. In some narratives, children say that they are *still* feeling bad—not just felt bad in the past. This suggests that they are feeling current distress that is "hot" and immersive, and may involve emotion-related physiological arousal.

Another indicator that narrators may be currently feeling distressed is their vocal pitch. Researchers interested in family conflict have examined changes in children's and adolescents' vocal pitch (e.g., Baucom et al., 2012), but narrative and moral development researchers have not yet examined nonverbal vocalizations to assess the extent to which narrators are feeling emotionally aroused during narration. When people are emotionally aroused, the pitch of their voices gets higher. Distress manifested through vocal pitch is presently felt by the speaker and consists of changes in psychological and subjective components (Scherer, 1986). An additional benefit to using vocal pitch to measure a narrator's distress is that it can reveal temporal changes in emotional arousal, such as how a child's distress changes over the course of telling a narrative. The present study examined how the intensity and form of children's distress during narration varies depending on a dispositional characteristic (guilt-proneness), the presumed meanings and judgments that they form in their narratives (fault condition), and developmental changes (age differences among 5-, 9-, and 16-year olds).

Why might more and less guilt-prone children feel different when they narrate harmdoings?

One characteristic that is likely to play an important role in children's distress during their narration of harmdoings is their guilt-proneness. The concept of guilt-

proneness has close ties to the concept of guilt, but there are key differences. Guilt-proneness is a between-person dispositional trait. It is regarded as a part of people's personalities. People who are more guilt-prone have a lower threshold for feeling guilty (Torstveit, Sutterlin, & Lugo, 2016), which means that they feel guilty based on fewer or more obscure cues. They tend to feel guilty across time and situations, including situations when feelings of guilt may be unwarranted (Tilghman-Osborne, Cole, & Felton, 2012). Guilty feelings arise when someone thinks or feels directly or indirectly responsible for another person's negative state (Estrada-Hollenbeck & Heatherton, 1997; Zahn-Waxler, Kochanska, Krupnick, & McKnew, 1990). At any one point in time, guilty feelings may or may not stem from a person's guilt-proneness. That is, a variety of factors lead to feelings of guilt. For instance, in some experiences, almost all people feel guilty, and in other situations, almost nobody feels guilty. The same is true for distress.

Surprisingly, no prior studies have examined how children's guilt-proneness relates to their distress during their narration of morally laden experiences. There is one study, however, that suggests people's guilt-proneness can influence how they feel when they narrate interpersonal conflicts. Leith and Baumeister (1998) found that adults who were more guilt-prone wrote narratives in which they considered the perspective of their conflict partner more often than adults who were less guilt-prone, and this was, in turn, related to expressing more guilt-relevant thoughts and feelings in the narrative. Inasmuch as these findings can be extended to children, they suggest that more and less guilt-prone children will be differently distressed when they narrate their harmdoings. For more guilt-prone youth, narrating their harmdoing experiences may evoke distress that is more intense and immersive than it is for less guilt-prone youth.

Under which conditions are these differences the most pronounced?

More and less guilt-prone children may have distress that is very dissimilar when they narrate harmdoings under some conditions, whereas they may have distress that is only a little different when they narrate harmdoings under other conditions. One condition when their distress may be very dissimilar is when children narrate harmdoing experiences when they thought the harm *was **not** their fault*. Children who are more guilt-prone tend to interpret events in ways that lead to guilty feelings, even in conditions when guilty feelings seem out of place (Tilghman-Osborne et al., 2012). Guilty feelings are unexpected during the narration of not-my-fault experiences, given the types of meanings that children arrive at in these narratives. When children narrate not-my-fault harm experiences, they often mention that others got hurt because of misunderstandings or because they pursued a goal that they thought was legitimate, such as only inviting close friends to a celebration (Bourne, Wainryb, & Pasupathi, 2017). It makes sense that these sorts of meanings would be associated with mitigated feelings of guilt and distress. But that might not be the case for highly guilt-prone youth. When more guilt-prone children narrate not-my-fault harm experiences, they may fixate on the negative consequences of their actions and feel distressed despite features that could be used to mitigate distress.

At the same time, the narration of experiences when they thought the harm *was their fault* may be precisely the sort of context when even children with a lower guilt-proneness have guilt-relevant emotions and thoughts that lead to distressing feelings. Children who have a lower guilt-proneness are still capable of having guilt-relevant thoughts and feelings; they just do so less often than children who have a higher guilt-proneness. In addition to possibly being influenced by their proneness to guilt, children's

distress during narration likely stems from other factors. These include the meanings that they make of their experiences, situational features, and other dispositional characteristics. When youth narrate my-fault harm experiences, they often mention that they could or should have acted differently, that the harm was caused because they were being careless or inattentive, and that they had a causal role in the harm (Bourne et al., 2017). Such meanings suggest that children who are less guilt-prone feel at least somewhat distressed when they narrate my-fault harm experiences.

At what point in childhood are these differences the most pronounced?

There is evidence suggesting that people's guilt-proneness is stable across the lifespan, and other evidence suggesting that the stability of dispositional characteristics similar to guilt-proneness increases with age. The only long-term longitudinal study of the stability of youths' guilt-proneness found that from ages 10 to 18 individuals' level of guilt-proneness is somewhat stable, with correlations around .30 or higher (Tangney & Dearing, 2002). In a recent short-term longitudinal study with 400 fifth and sixth graders, children's guilt-proneness was significantly correlated (r = .58) with their guilt-proneness 6 months later (Roos, Hodges, & Salmivalli, 2014). Although there is some stability in guilt-proneness across the school years, other evidence suggests that dispositional characteristics like guilt-proneness tend to become increasingly stable, trait-like, and predictive with age (Shiner & Caspi, 2012). For instance, the stability of negative emotionality increases between toddlerhood and the middle childhood years (Neppl et al., 2010). This suggests that guilt-proneness functions in more trait-like ways and should

have more robust correlations with children's functioning, such as their distress during narration, in adolescence than in early childhood.

Does distress change differently over the course of narration for children who are more and less guilt-prone?

Distress during narration can be thought about as a global phenomenon across the narrative as a whole. Now I turn to consider the ways in which children's distress changes over the course of constructing narratives about harm—from a story's beginning to its end—and how that varies for youth who are more and less guilt-prone. Children who are more guilt-prone may ruminate over distressing features throughout their narratives, and struggle to draw the sorts of meanings that are associated with decreasing distress at the close of their narratives. By contrast, children who are less guilt-prone may feel some distress when they talk about causing harm, but are able to contain, contextualize, or get some distance from their own distress by the end of their narratives. Fleeting feeling of distress during narration of harmdoings may be less problematic than when distress is maintained over the course of the entire story. Near the end of their stories, narrators can consider the broader implications of the experience and speculate about how they might behave differently in future similar experiences. When narrators are still distressed in the latter part of their stories, they may be less likely to consider adaptive resolutions, insights, and lessons.

Overview of present research and hypotheses

The present study explored how more and less guilt-prone children feel when they narrate their own experiences of hurting their peers, how these relations (between children's guilt-proneness and distress) are moderated by fault condition, and how they are moderated by age group. Various intensities and manifestations of distress were considered, including temporal changes in distress over the course of narration. To address these aims, 5-, 9-, and 16-year-old children completed a guilt-proneness questionnaire (i.e., youth versions of the TOSCA; Tracy & Dearing, 2002). They provided verbal narratives of their own experiences of causing harm when they thought it was their fault (my-fault harm) and was not their fault (not-my-fault harm). Verbal and vocal indicators of the narrator's distress were extracted from transcripts of the narratives and from audio recordings of children narrating.

Evidence and theory suggested the following hypotheses. First, I expected that youth who were more guilt-prone would feel more intense and immersive forms of distress than youth who were less guilt-prone as they told stories about their harmdoings (Hypothesis 1). Second, I hypothesized that these relations would be the most apparent when children narrated experiences when they judged it was *not* their fault, as compared to when they judged it was their fault. In other words, fault condition would moderate relations between children's guilt-proneness and their distress (Hypothesis 2). I also expected that age group would moderate the relations. Specifically, I expected that relations between guilt-proneness and distress during narration would get stronger with age (Hypothesis 3). The first three hypotheses were for overall distress during narration. The fourth hypothesis was about how children's distress changed over the course of

narration differently for more and less guilt-prone youth. I expected that children who were less guilt-prone would have distress that decreases more steeply than children who were more guilt-prone (Hypothesis 4). Lastly, since distress was measured in a variety of ways, it was possible that relations between children's guilt-proneness and their distress would emerge for some distress indices but not for others. I thought that relations would be most pronounced for indicators that captured distress that is currently felt and physiologically arousing rather than distress that is felt with a little more distance.

METHOD

Participants

Participants were children and adolescents in three age groups, split evenly by sex. The initial sample was 120 youth, but two 5-year-old participants encountered problems with the computer tablet, and two other participants (aged 5 and 9) could not think of two harm experiences. These four participants were excluded, leading to a final sample of 116 participants: thirty-seven 5-year-olds (*M* age = 5.65, *SD* = .31), thirty-nine 9-year-olds (*M* age = 9.53, *SD* = .33), and forty 16-year-olds (*M* age = 16.16, *SD* = .66). Participants were primarily European American (72%), with the remaining children representing a variety of ethnicities: African American (3%), Asian (2%), Hispanic and/or Latino/a (6%), and mixed descent or other (10%). Seven percent of parents chose to not disclose their child's ethnicity. Written parental permission and child assent were obtained for all participants.

Procedure

Children were interviewed individually at their schools, community centers, or homes. First, they were asked to narrate two experiences of causing harm: a my-fault harm event ("A time when you did or said something, and another kid ended up upset or hurt, and it was your fault") and a not-my-fault harm event ("…it was not your fault"). Order of the fault conditions was counterbalanced within each age group and by gender.

Interviews were audio-recorded using a digital audio-recorder and were transcribed verbatim. After narrating both harmdoing experiences, children were asked to narrate a time when they felt proud and were asked six follow-up questions about each of the narrated events. The pride narrative and follow-up questions took approximately 10 minutes. These tasks were not used in the present study.

Next, to assess children's guilt-proneness, participants completed an age-appropriate version of the Test of Self-Conscious Affect (TOSCA; described below). The order in which participants narrated my-fault and not-my-fault events was not significantly related to their guilt-proneness scores (*p*s > .12, assessed separately for each age group). Participants finished the study by completing the Implicit Theories of Personality measure (ITP; Bempechat, London, & Dweck, 1991; Dweck, 1999), subscales from the Behavioral Assessment Scale for Children - 2nd addition (BASC-2), and subscales from the Behavior Rating Inventory of Executive Function–Self-Report Version (BRIEF-SR; 9- and 16-year-olds only). Results from the ITP, BASC-2, and BRIEF were not examined in the present study. All questionnaires were completed using an iPad. The experimenter read aloud the questionnaire directions and individual items to all of the 5-year-old participants, and to most of the 9-year-old participants.

Measures

Guilt-proneness: Test of Self Conscious Affect (TOSCA)

Participants completed one of the most frequently used measures of guilt-proneness: the Test of Self-Conscious Affect. The TOSCA-Child (Tangney, Wagner, Burggraf, Gramzow, & Fletcher, 1990) is designed for use with 8- to 12-year-olds and

was therefore used with participants in the middle age group. The TOSCA-Adolescent (Tangney, Wagner, Gavlas, & Gramzow, 1991) was completed by participants in the oldest age group. The TOSCA-C was adapted for use with the 5-year-old participants for the present study. Modifications are described below.

The TOSCA-C and TOSCA-A consist of 15 scenarios (10 negative, 5 positive). Each scenario is followed by four or five responses designed to assess guilt-proneness, shame-proneness, externalization, detachment, alpha pride, and beta pride. Only the 15 guilt-proneness subscale items were used in this study. Scenarios depict failures and successes having to do with social situations and achievement concerns (e.g., grades, effort). After each scenario, participants respond to what extent they would endorse a guilt-proneness response (1 = not at all likely, 5 = very likely). Guilt-proneness responses include feelings of regret or remorse, attempts to repair the harm or apologize, negatively evaluating specific behaviors, planning to modify negative behaviors moving forward, accepting responsibility, and deserving punishment. The TOSCA-C includes an illustration with each scenario.

Adaptation of the TOSCA-C for 5-year-old participants. Five of the negative TOSCA-C scenarios (with their accompanying illustrations) were adapted for use with participants in the youngest age group. The five scenarios selected depicted spilling a drink (two scenarios), arguing with a friend, talking in class, and inviting a friend to play before asking a parent. Scenarios and responses were modified to be in the third-person and to include an explicit "Would you feel like that [think that]?" (e.g., "Max and his best friend get into an argument at school…He feels sorry and like he shouldn't have done it. Would you feel like that?"). Instead of using a 5-point Likert-type scale, participants in

the youngest age group had three answer choices that were accompanied by pictures: a thumbs up representing "Yes, I would think or feel that way" (coded as 3); a flat hand with the palm down representing "Maybe, in the middle. I might think or feel that way [I'm not sure]" (coded as 2); and a thumbs down representing "No, I would not think or feel that way" (coded as 1). Before completing the TOSCA-C the 5-year-olds participants were trained on how to use the iPad and how to select the image that reflected their answer.

TOSCA reliability and data reduction. Previous studies show that the guilt subscales of the TOSCA-C and TOSCA-A have acceptable internal consistency, convergent and discriminant validity, and test-retest reliability (Roos et al., 2014; Watson, Gomez, & Gullone, 2015, 2016). In this study, reliability for the guilt-proneness subscale was acceptable for 9- and 16-year-olds (αs = .80 and .67, respectively). Internal reliability with the five items was poor for 5-year-olds (α = .34). To gain a sense of whether the poor reliability for the 5-year-olds stemmed from them not understanding the adapted TOSCA-C, I examined the reliability of the shame-proneness items, which were based on the same scenarios as the guilt-proneness items. Reliability for the five shame-proneness items was acceptable for 5-year-olds (α = .71) and twice the internal reliability for the five guilt-proneness items. Thus, it is unlikely poor reliability was caused by 5-year-olds not understanding the adapted TOSCA-C.

Reliability improved with a two-item version of the 5-year-olds' guilt-proneness questionnaire (α = .58). The two-item version consisted of one scenario in which an actor tripped and spilled a friend's drink and one in which friends got into an argument. The guilt response items depicted the actor feeling sorry and evaluating the behavior as wrong.

Scenarios excluded depicted an actor who spilled drink at her aunt's house, got in trouble for talking in class, and invited a friend over but the actor's mom said no. I used all 15 guilt-proneness items for the 9- and 16-year-olds, and the two items for the 5-year-olds. Guilt-proneness subscale items were averaged for each participant. Next, since 5-year-olds used a 3-point Likert-type scale and 9- and 16-year-olds used a 5-point Likert-type scale, responses were standardized within each age group. To standardize, the guilt-proneness mean for a participant's age group was subtracted from his or her guilt-proneness score, and then divided by the standard deviation for that age group.

Children's guilt-proneness is often positively related to their shame-proneness.[1] Therefore, some researchers decide to examine the effects children's proneness to "shame-free guilt" by removing the shared variance between children's guilt- and shame-proneness (e.g., Muris, Meesters, Bouwman, & Notermans, 2015). Other researchers study children's guilt-proneness without controlling for their shame-proneness. Researchers who prefer this second approach make a compelling argument that it is unclear exactly what is being removed when the common variance between guilt- and shame-proneness is removed (Ferguson, Stegge, Eyre, Vollmer, & Ashbaker 2000). For this reason, and because my focus is not on the difference between children's guilt- and shame-proneness, I examined the relations between children's guilt-proneness and their distress during narration of harmdoings without controlling for their shame-proneness.

[1] In this study, children's guilt-proneness and shame-proneness were weakly to moderately related, $r = .14$, $r = .36$, and $r = .23$, for 5-, 9-, and 16-year-olds, respectively. Guilt- and shame-proneness were both measured using age-appropriate versions of the TOSCA.

Measures of distress

Six indices of the distress that children expressed during their narration of harmdoings were examined. Three indices were coded from the typed transcripts: frequency of references to negative emotions, presence of negative emotions in the present-tense, and contour of change in distress. Two indices were assessed from the audio of the narratives: aggregate fundamental frequency (f_0) range, and f_0 range change. One index was coded using both typed transcripts and audio: global distress intensity. The author coded all narratives, and a research assistant coded 20% of the data to establish interrater reliability. For coding schemes that led to a count or ordinal variable, interrater reliability was calculated as two-way random intraclass correlation coefficients (ICCs) with absolute agreement for a single coder. For coding schemes that led to categorical or binary variables, interrater reliability was calculated as Cohen's kappa (κ). These methods are customary in narrative coding (Syed & Nelson, 2015). Reliability scores are presented below.

Number of references to narrator's own negative emotions. The intensity of children's distress was first operationalized as the frequency of their references to their own negative emotions. The typed transcripts of children's narratives were coded for explicit references to the narrator's negative emotions. Negative emotions include specific, discrete negative emotions (anger, sadness, guilt, shame), as well as references to nonspecific negative affect (feeling bad). Each phrase in which the narrator references his or her negative emotion was coded, and then the number of phrases was summed. Repeated references to the same emotion and references to various negative emotions lead to higher frequencies. Interrater reliability for frequency of references to the

narrator's own negative emotions was high (ICC = .91).

Narrator's negative emotions in the present tense. Narratives with any references to the narrator's negative emotions were examined to find whether at least one negative emotion was in the present tense (e.g., "I still feel bad about what I did"). Present-tense negative emotions suggest that the narrator is still immersed in their current feelings of distress. Stories in which the narrator referenced one or more negative emotion in the present tense received a code of 1. Stories with no references to negative emotions or with only negative emotions in the past tense received a code of 0. Interrater reliability for the presence of the narrator's negative emotions in the present tense was excellent (Cohen's $\kappa = 1.00$).

Coded contour: Change in distress according to verbal indicators. Typed transcripts of the narratives were also examined to classify how distress changed from the beginning of a story to its end. Each narrative was classified into one of three contour patterns: the narrator appears to have low levels of distress that are maintained over the course of narration (stable-low contour), the narrator appears to have moderate to high levels of distress that are maintained over the course of narration (stable-high contour), or the narrator's distress appears to decrease over the course of narration (decreasing contour). Verbal statements that suggested that the narrator was feeling moderate or intense distress included references to the narrator's own negative emotions (see above), negative evaluations of their own behavior ("I shouldn't have said that to him"), maximizing the harmful outcome for the victim or for the relationship ("She was really, really sad; We were never friends again"), and implying that the victim did not deserve to be hurt. Verbal statements that suggested distress was declining near the end of the

narrative were positive resolutions ("It's all okay now"). Past and currently felt distress were both considered. Interrater reliability for the contour of change in distress according to verbal indicators was adequate (Cohen's $\kappa = .86$).

Fundamental frequency range. How emotional children sound in terms of vocal pitch during their narration of harmdoings was operationalized as their range of fundamental frequency. F_0 is measured in cycles per second (hertz, Hz). Methods of extracting f_0 range in the present study were modeled after procedures used by Baucom et al. (2012). To extract f_0 range, audio files of each narrative were be prepared by separating the participant's conversational turns from the interviewer's conversational turns. Nonspeech artifacts such as background noises were silenced. Next, the participant's audio file was analyzed in .25-second intervals using Praat (Boersma & Weenink, 2016). Praat was specified to produce the f_0 mean, minimum, and maximum for each .25 second of the child's speech turns, with an appropriate bandpass filter restricting values of f_0 to be within an appropriate range for child speech (Owren & Bachorowski, 2007; Sorenson, 1989). Errors in pitch extraction were corrected using standard procedures (Baucom et al., 2012; Johnstone, van Reekum, Hird, Kirsner, & Scherer, 2005). Next, the f_0 maximum and minimum values were averaged into 5-second intervals within each narrative. F_0 was only calculated for 5-second blocks when there were at least 3 quarter-seconds of speech within that block. Data were marked as missing for blocks when the participants' vocalizations were less than 3 quarter-seconds, it was silent or nonspeech artifacts were present for the entire 5 seconds, and only the interviewer was speaking during the 5-second block.

Aggregate f_0 range. First, in order to calculate an aggregate f_0 range score for each narrative, I subtracted the minimum f_0 value, out of all the blocks in the entire narrative (i.e., the minimum of all the minimum f_0 values, after they have been averaged into 5-second blocks), from the maximum f_0 value, out of all the blocks in the entire narrative (the maximum of all the maximum f_0 values, after they have been averaged into 5-second blocks). Consistent with prior work (e.g., Juslin & Scherer, 2005) a greater aggregate f_0 range indicates more distress.

F_0 range in 5-second blocks. Second, in order to examine change in f_0 range over the course of narration, I calculated a second form of f_0 range scores using the 5-second blocks. The minimum f_0 value used to calculate the aggregate f_0 range score (i.e., minimum minimum) was subtracted from the maximum f_0 value for each 5-second block.

Global distress. The final dependent variable was global distress. Coders listened to audio files of children narrating their harm experiences and simultaneously read the typed transcripts. Coders rated the extent of the narrator's distress, with distress defined as feeling sad, withdrawn, anxious, tense, fearful, or a nonspecific "bad". Codes ranged from 1 (relaxed) to 4 = (medium to lots of distress). Reliability for global distress coding was adequate (ICC = .82).

Analytic plan

A series of multilevel models were run for analyses, using HLM Version 7.0 (Raudenbush, Bryk, & Congdon, 2011). Separate models were run for each distress indicator. For the first set of analyses, data were nested as narratives (level 1) within people (level 2), with distress intensity as the outcome. The categorical predictor of fault

condition (0 = not-my-fault harm, 1 = my-fault harm) was added to level 1. The standardized guilt-proneness predictor was added to level 2, and the cross-level interaction between guilt-proneness (level 2) and fault condition (level 1) was specified. A dummy-coded set of categorical predictors representing the three age groups were added to the models, with 9-year-olds acting as the reference group. Variables representing interactions of age group and guilt-proneness were created and included on level 2. All distress intensity variables and continuous predictors were analyzed for normality. Global distress and fundamental frequency range were normally distributed. Because present-tense negative emotions was coded dichotomously, a Bernoulli distribution was specified in HLM, and because the number of negative emotions was a count variable, a Poisson distribution was specified in HLM. A multinomial model was specified in HLM for coded contour of change in distress.

For the growth analysis, data were nested as follows: time in 5-second blocks (level 1), within narratives (level 2), within people (level 3). The outcome was distress intensity as indexed by *f_0 range in 5-second blocks.* Time was added as a level 1 predictor, with 0 as the first 5 seconds of the narrative. Scatterplots and descriptives of how f_0-range changes across time were examined to determine which contours of change across time were reasonable (e.g., linear, quadratic). Standardized guilt-proneness was added to level 3, and cross-level interactions were specified between guilt-proneness (level 3) and the lower-level predictors of time (level 1) and fault condition (level 2).

Sex was included as a covariate in analyses predicting f_0 range (-.5 = female, .5 = male). After puberty there are sex differences in f_0 parameters, with males having lower mean f_0 (e.g., Perry, Ohde, & Ashmead, 2001). Word count was added to level 1 as a

covariate (grand-centered) for models predicting number of narrator's negative emotions and presence of present-tense negative emotions. Length of narrative in terms of number of 5-second blocks was included as a covariate on level 2 (grand-centered) for the model predicting f_0 range over time.

RESULTS

Table 1 presents the means and standard deviations of distress indices by fault condition and age group. As discussed in the Method section, guilt-proneness was standardized within each age group because 5-year-olds used a 3-point scale and were presented only a few scenarios while 9- and 16-year-olds used a 5-point scale and were presented with the full 15 scenarios of the TOSCA. Guilt-proneness scores were as follows before standardization: $M_{\text{5-year-olds}} = 2.64$, $SD = .59$; $M_{\text{9-year-olds}} = 4.10$, $SD = .45$; and $M_{\text{16-year-olds}} = 3.83$, $SD = .41$. Table 2 presents correlations between study variables. Correlations for my-fault harm narratives are denoted above the diagonal and correlations for not-my-fault harm narratives are denoted below the diagonal. As expected, the multiple indicators of distress were interrelated, in both my-fault narratives and not-my-fault narratives. However, correlations tended to be small in magnitude; 9 out of the 12 zero-order correlations among the distress variables were below .20. According to the bivariate correlations between guilt-proneness and distress (shown in Table 2) children's guilt-proneness was not significantly related to any indicators of distress, but there was a positive trend ($r = .18$, $p = .052$) between guilt-proneness and aggregate f_0 range in the not-my-fault context.

Next, I ran six multilevel models: four to examine overall distress indicators (one model for each indicator), one model to examine the contour of change over the course of narration as coded from the typed transcripts, and one growth model to examine the

contour of change over the course of narration in terms of change in f_0 range every 5 seconds. Results revealed no support for my third hypothesis—that the relation between guilt-proneness and distress during narration of harmdoings would be stronger for older youth than for younger youth Across all six models, the interactions between guilt-proneness and the age group variables were not significantly different from zero. (This was also the case when the reference group was changed to 5- or 16-year-olds and the appropriate interactions entered.). When the guilt-proneness and age group interaction variables were removed from the models, there were no effects that changed in significance. Therefore, the guilt-proneness x age group interactions were removed from the models presented below and Hypothesis 3 was disconfirmed.

Guilt-proneness and overall distress intensity

during narration of harmdoings

Table 3 presents the results of the four multilevel models used to test hypotheses 1 and 2. Each indicator of overall distress was regressed onto the main effects of guilt-proneness, fault condition, and dummy-coded variables for the age groups; the interaction between guilt-proneness and condition; and relevant covariates. The following equations describe these models:

Level-1 (Narrative): $\text{Overall Distress}_{ij} = \beta_{0j} + \beta_{1j}*(\text{Fault Condition}) + r_{ij}$

Level-2 (Individual): $\beta_{0j} = \gamma_{00} + \gamma_{01}*(\text{GP}) + \gamma_{02}*(\text{Age1}) + \gamma_{03}*(\text{Age2}) + \text{covariate} + \mu_{0j}$

$\beta_{1j} = \gamma_{10} + \gamma_{11}*(\text{GP})$

The model with **number of the narrator's negative emotions** as the distress indicator outcome revealed a trend ($p = .061$) for an interaction between guilt-proneness

and fault condition (see Table 3). I had hypothesized that guilt-proneness would have a stronger link to distress in the not-my-fault condition, but results revealed that the link between guilt-proneness and negative emotions approached significance in the my-fault condition (p = .064), but not in the not-my-fault condition (p = .520). In my-fault harm narratives, children who were higher in guilt-proneness made more references to their own negative emotions than children who were lower in guilt-proneness. There was a significant main effect of fault condition. Unsurprisingly, participants referenced more negative emotions in their my-fault harm stories than in their not-my-fault harm stories. A significant main effect of age group emerged for the dummy-coded variable representing the difference between 5- and 9-year-olds. Consistent with prior research, 5-year-olds referenced fewer of their own negative emotions than 9-year-olds. Word count was included in the model as a covariate, and participants who told longer stories referenced more negative emotions (B = .003, p < .001).

The next model predicted the presence (vs. absence) of narrators' references to their own **negative emotions in the present tense.** Present-tense negative emotions were infrequently referenced under both fault conditions (see Table 1 for the proportion of narratives containing these references). One concern in statistical analyses with outcomes that seldom arise is that estimates are biased (Atkins & Gallop, 2007). However, this model—in which I specified a Bernoulli distribution since the outcome was binary—had standard errors of the estimates that were small and reasonable, which suggests that estimates were not biased. Results supported the first hypothesis. Children who were more guilt-prone were more likely to construct narratives that contained at least one reference to still feeling upset than children who were less guilt-prone. Participants were

more likely to reference a present-tense negative emotion in their my-fault stories than in their not-my-fault stories. Word count was also included in this model as a covariate. Participants who told longer stories were more likely to reference a present-tense negative emotion (B = .004, p = .002). Coefficients and standard errors of the coefficients are reported in Table 3.

For distress as the **aggregate f_0 range**, there was a trend in the expected direction for the main effect of guilt-proneness, with participants who were more guilt-prone showing a greater aggregate f_0 range during narration than participants who were less guilt-prone (p = .081, see Table 3). Sixteen-year-olds had a smaller aggregate f_0 range than 9-year-olds. Lastly, sex was included in the model as a covariate. Consistent with prior research (Baucom et al., 2012), boys had a smaller f_0 aggregate range than girls (B = -11.35, p = .011).

As shown in Table 3, in the final model of overall distress I regressed **global distress** on guilt-proneness and the other predictors. The main effect of guilt-proneness and a guilt-proneness x fault condition effect were not significantly different from zero. Both 5- and 16-year-olds had lower global distress than 9-year-olds. Not surprisingly, participants had higher levels of global distress in their my-fault narratives than in their not-my-fault narratives.

Guilt-proneness and change in distress over the course of narration

In the next set of analyses, I examined whether higher levels of guilt-proneness would be linked with less steep declines in distress over the course of narration

(Hypothesis 4). First, a two-level model was conducted to test the **coded contour** of change in distress. I specified a multinomial model with the three coded contours: low flat, high flat, decreasing. In analyses, category 1 was specified as the high-flat distress contour and category 2 was specified as the decreasing distress contour. Hypothesis 4 was not supported by the model; effects of guilt-proneness and guilt-proneness x fault condition did not emerge as significant. However, for both the high-flat and decreasing contours, there were main effects of fault condition. Participants were more likely to construct narratives with high-flat and decreasing contours in the my-fault condition than in the not-my-fault condition (for high-flat, B = 1.55, $p < .01$; for decreasing, B = 1.83, $p < .01$). There were no main effects of age group.

Next, I examined changes in distress as measured by **fundamental frequency (f_0) range in 5-second blocks** over the course of narration. First, I examined Lowess smoothed plots of f_0 range. Plots suggested that a linear and quadratic growth model was a reasonable approach for data analysis. A plot for a 10-year-old boy (not-my-fault harm narrative) and a 15-year-old girl (my-fault harm narrative) are displayed in Figure 1. F_0 range was regressed onto the main effects and interactions for guilt-proneness, fault condition, and age group, with sex and number of total blocks as covariates. This model also included time in 5-second blocks (linear term), quadratic time, and—to assess the primary prediction—interactions between the time variables and guilt-proneness. This equation describes the growth model:

Level-1 (Time): $Y(F_0 \text{ Range})_{ijk} = \pi_{0jk} + \pi_{1jk}*(\text{Linear Time}) + \pi_{2jk}*(\text{Quadratic Time}) + e_{ijk}$

Level-2 (Narrative): $\pi_{0jk} = \beta_{00k} + \beta_{01k}*(\text{Fault Condition}) + \beta_{02k}*(\text{Num. of Blocks}) + r_{0jk}$

$\pi_{1jk} = \beta_{10k} + \beta_{11k}*(\text{Fault Condition})$

$$\pi_{2jk} = \beta_{20k} + \beta_{21k}*(\text{Fault Condition})$$

Level-3 (Individuals): $\beta_{00k} = \gamma_{000} + \gamma_{001}*(\text{GP}) + \gamma_{002}*(\text{Age1}) + \gamma_{003}*(\text{Age2}) + \gamma_{004}*(\text{Sex}) + u_{00k}$

$$\beta_{01k} = \gamma_{010} + \gamma_{010}*(\text{GP})$$

$$\beta_{02k} = \gamma_{020}$$

$$\beta_{10k} = \gamma_{100} + \gamma_{101}*(\text{GP})$$

$$\beta_{11k} = \gamma_{110} + \gamma_{111}*(\text{GP})$$

$$\beta_{20k} = \gamma_{200} + \gamma_{201}*(\text{GP})$$

$$\beta_{21k} = \gamma_{210} + \gamma_{211}*(\text{GP})$$

As depicted in Table 4 at the start of narration (i.e., the intercept) 16-year-olds had a smaller f_0 range than 9-year-olds. Covariates revealed that males had a smaller f_0 range at the start of narration than females, and a greater f_0 range at the start of narration was related to telling a longer narrative overall. Children's guilt-proneness was not related to the intensity of their distress at the start of their narratives. I hypothesized that children's guilt-proneness would moderate how distress changed over the course of telling a narrative, with higher levels of guilt-proneness relating to less steep declines in distress. Analyses revealed that main effects of linear and quadratic time were qualified by interactions, and all significant interactions involved fault condition. To aid with the interpretation of the 3-way interactions, I used Preacher's online tools to calculate simple slopes for youth who had a lower guilt-proneness (mean - 1 *SD*) and those who had a higher guilt-proneness (mean + 1 *SD*), during narration of not-my-fault and my-fault narratives (Preacher, Curran, & Bauer, 2006).

Linear change in f_0 range over the course of narration

As shown in Table 4, there was on average a decline in children's distress across narration. For every 5 seconds that progressed during narration, children's f_0 range became smaller by .36 units. Next, the ways in which children's guilt-proneness was associated with linear changes in distress varied by fault condition (see Figure 2). Simple slopes reveal that for youth with a high guilt-proneness, distress significantly decreased over the course of narrating not-my-fault harm experiences (B = -0.57, $p < .0001$), but did not decrease when they narrated my-fault harm experiences (B = .01, $p > .05$). For low guilt-prone youth, distress decreased during narration of my-fault harm (B = -.23, $p = .058$) and not-my-fault harm (B = -.15, $p > .05$) stories, with decreases that did not quite reach significance.

Quadratic change in f_0 range over the course of narration

On average, decreases in distress slowed down, plateaued, or reversed as children's narratives progressed (a positive, U-shaped contour), with contours of change fitting this quadratic pattern more often during the telling of not-my-fault harm narratives than during the telling of my-fault harm ones. Guilt proneness was also associated with distress changing in a quadratic fashion, but in a way that varied by fault condition (see Table 4). Simple slope clarified the quadratic time x guilt-proneness x fault condition interaction. Children with a high proneness to guilt had decreases in distress that began to plateau over the course of narrating their not-my-fault stories (B = .007, $p < .05$), whereas when these same youth narrated my-fault stories, changes in distress did not assume a quadratic contour (B = -.001, $p > .05$). For children with a low proneness to guilt,

quadratic changes were nonsignificant during both narration of not-my-fault (B = -.001, $p > .05$) and my-fault (B = .001, $p > .05$) stories.

These findings show some support for my fourth hypothesis, which was that for youth with a higher guilt-proneness, declines in distress would be less steep than the declines for youth with a lower guilt-proneness. Results revealed that these relations were more complex than I expected. For youth with a low proneness to guilt, distress decreased while they narrated harmdoings under both conditions, and these decreases continued over the course of narration. That is, their decreasing distress did not level-off or show quadratic rebounds. For youth with a high proneness to guilt, distress significantly decreased while they narrated not-my-fault narratives, but these decreases started to level-off at some point during narration. For youth with a high proneness to guilt, distress appeared to be stable when they narrated my-fault stories.

Table 1

Overall Distress Variables and Coded Contour of Distress, by Condition and Age

	My-Fault Condition				Not-My-Fault Condition			
Indicator of Distress	5-y.o.	9-y.o.	16-y.o.	Total	5-y.o.	9-y.o.	16-y.o.	Total
Number of neg. emo.	.35	1.36	1.08	.94	.27	.41	.88	.53
(SD)	*(.86)*	*(2.06)*	*(1.56)*	*(1.62)*	*(.61)*	*(1.02)*	*(1.57)*	*(1.17)*
Present tense emo.	.03	.08	.15	.09	.03	.00	.03	.02
(SD)	*(.16)*	*(.27)*	*(.36)*	*(.28)*	*(.16)*	*(.00)*	*(.16)*	*(.13)*
Aggregate f_0 range	138.81	136.53	111.93	128.78	140.83	133.94	110.57	128.08
(SD)	*(27.21)*	*(27.65)*	*(31.17)*	*(31.07)*	*(28.96)*	*(28.44)*	*(29.32)*	*(31.49)*
Global distress	2.86	3.62	3.08	3.19	2.73	3.31	2.93	2.99
(SD)	*(.89)*	*(.54)*	*(.80)*	*(.81)*	*(.80)*	*(.77)*	*(.97)*	*(.88)*
Contour: Low-flat	.38	.21	.13	.23	.49	.56	.43	.49
(SD)	*(.49)*	*(.41)*	*(.33)*	*(.42)*	*(.51)*	*(.50)*	*(.50)*	*(.50)*
Contour: High-flat	.49	.51	.48	.49	.41	.31	.28	.33
(SD)	*(.51)*	*(.51)*	*(.51)*	*(.50)*	*(.50)*	*(.47)*	*(.45)*	*(.47)*
Contour: Decreasing	.14	.28	.40	.28	.11	.13	.30	.18
(SD)	*(.35)*	*(.46)*	*(.50)*	*(.45)*	*(.31)*	*(.34)*	*(.46)*	*(.39)*

Notes. The numbers in each cell reflect means by condition and age. For the bivariate codes (present tense emo. and the three contour codes) numbers reflect the proportion of narratives (by condition and age) in which each narrative element was present. Number of neg. emo. = number of negative emotion words. Present tense emo. = bivariate coding of present-tense negative emotion words. f_0 = fundamental frequency. Coded contour separated into three variables for descriptive purposes; multinomial analyses were with one variable that contained information about all three codes.

Table 2

Correlations of Guilt-Proneness and Overall Indicators of Distress

Variable	1	2	3	4	5
1. Guilt-proneness	--	.16	.14	.03	.11
2. Number of negative emotions	-.02	--	.53***	.15	.27**
3. Present-tense neg. emotion	.10	.11	--	.07	.19*
4. Aggregate f_0 range	.18	-.01	.08	--	.07
5. Global distress	.10	.21*	.15	.13	--

Notes. Correlations for my-fault narratives are denoted above the diagonal and correlations for not-my-fault narratives are denoted below the diagonal. Present-tense neg. emotion = bivariate coding of present-tense negative emotion words. f_0 = fundamental frequency.
* $p < .05$. ** $p < .01$. ***$p < .001$

Table 3

Multilevel Models of the Effects of Guilt Proneness, Age, and Fault Condition on Four Overall Distress Indices; Final Model With Robust Standard Errors

	Number of negative emotions [a]		Present-tense negative emotion [b]		Aggregate f_0 range [c]		Global distress [c]	
Predictor	*B*	*SE B*	*B*	*SE B*	*B*	*SE B*	*B*	*SE B*
Intercept, γ_{00}	-.62	.21	-5.19	.67	134.76	3.97	3.36	.10
GP, γ_{01}	-.11	.17	.85**	.26	4.70+	2.67	.09	.07
5 vs. 9, γ_{02}	-.73*	.29	.13	.71	4.96	5.11	-.66***	.16
16 vs. 9, γ_{03}	-.20	.25	.39	.64	-23.83***	5.14	-.46**	.15
Fault cond., γ_{10}	.67***	.20	2.37***	.67	.65	2.99	.20**	.06
GP x Fault, γ_{11}	.34+	.18	-.40	.51	-4.71	2.99	-.01	.06
Sex	--		--		-11.35*	4.42	--	
Word count	.003***	.00	.004**	.00	--		--	

Notes. * $p < .05$, ** $p < .01$, *** $p < .001$, + $p < .10$

[a] Poisson distribution. [b] Bernoulli distribution [c] Normal distribution

GP = Guilt-proneness. Fault cond. = Fault condition. Dummy-coded with not-my-fault condition as the reference group. GP x Fault = Guilt-proneness x fault condition interaction.

Table 4

Multilevel Modeling of the Effects of Guilt Proneness, Age, and Fault Condition on Change in Distress Intensity Over the Course of Narration; Final Model With Robust Standard Errors

Variable	Coefficient (*SE*)	*t(df), p*
Intercept (Distress at start of narration)		
Intercept (9-year-olds; not-my-fault)	98.36 (3.37)	$t(111) = 29.14, p < .001$
Guilt-proneness	3.00 (2.97)	$t(111) = 1.01, p =$ ns
5-year-olds vs. 9-year-olds	-1.00 (4.58)	$t(111) = -.22, p =$ ns
16-year-olds vs. 9-year-olds	-24.83 (4.47)	$t(111) = -5.56, p < .001$
Sex	-11.46 (4.02)	$t(111) = -2.85, p < .01$
Fault condition	-.86 (2.64)	$t(113) = -.33, p =$ ns
Guilt-proneness x Fault condition	-4.00 (2.64)	$t(113) = -1.52, p =$ ns
Number of 5-second blocks	.25 (.07)	$t(113) = 3.52, p < .001$
Linear Change in Distress		
Intercept	-.36 (.08)	$t(5001) = -4.32, p < .001$
Guilt-proneness	-.21 (.11)	$t(5001) = -1.83, p =$ ns
Fault condition	.26 (.14)	$t(5001) = 1.84, p =$ ns
Guilt-proneness x Fault condition	.33 (.15)	$t(5001) = 2.22, p < .05$
Quadratic Change in Distress		
Intercept	.003 (.00)	$t(5001) = 2.97, p < .01$
Guilt-proneness	.004 (.00)	$t(5001) = 1.66, p =$ ns
Fault condition	-.003 (.00)	$t(5001) = -2.33, p < .05$
Guilt-proneness x Fault condition	-.005 (.00)	$t(5001) = -2.10, p < .05$

Notes. ns = not significantly different from zero at $p < .05$. Not-my-fault condition was the reference group (i.e., not-my-fault coded as 0, my-fault coded as 1).

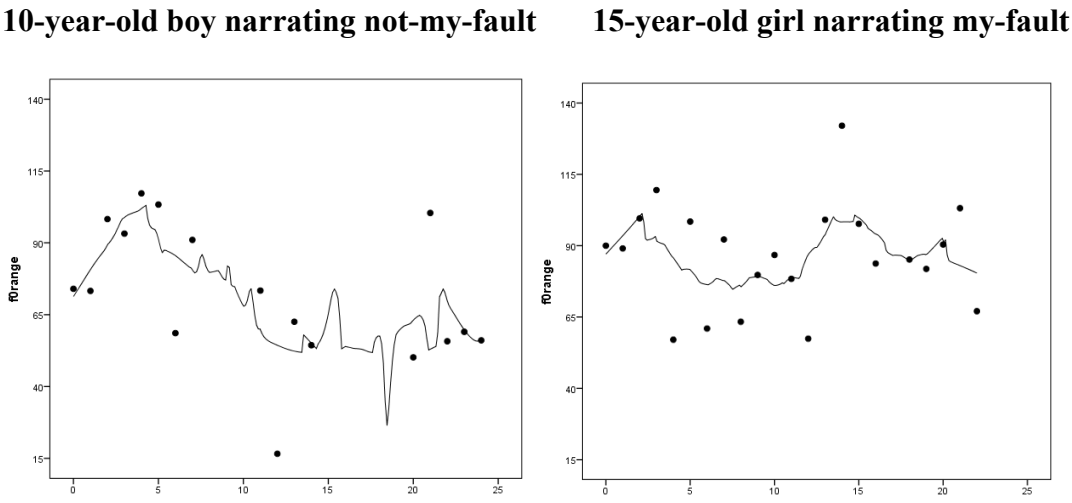

Figure 1. Lowess-smoothed plots of f_0 range over the course of narration, for two examples: a 10-year-old boy narrating a not-my-fault account (left panel) and a 15-year-old girl narrating a my-fault account (right panel)

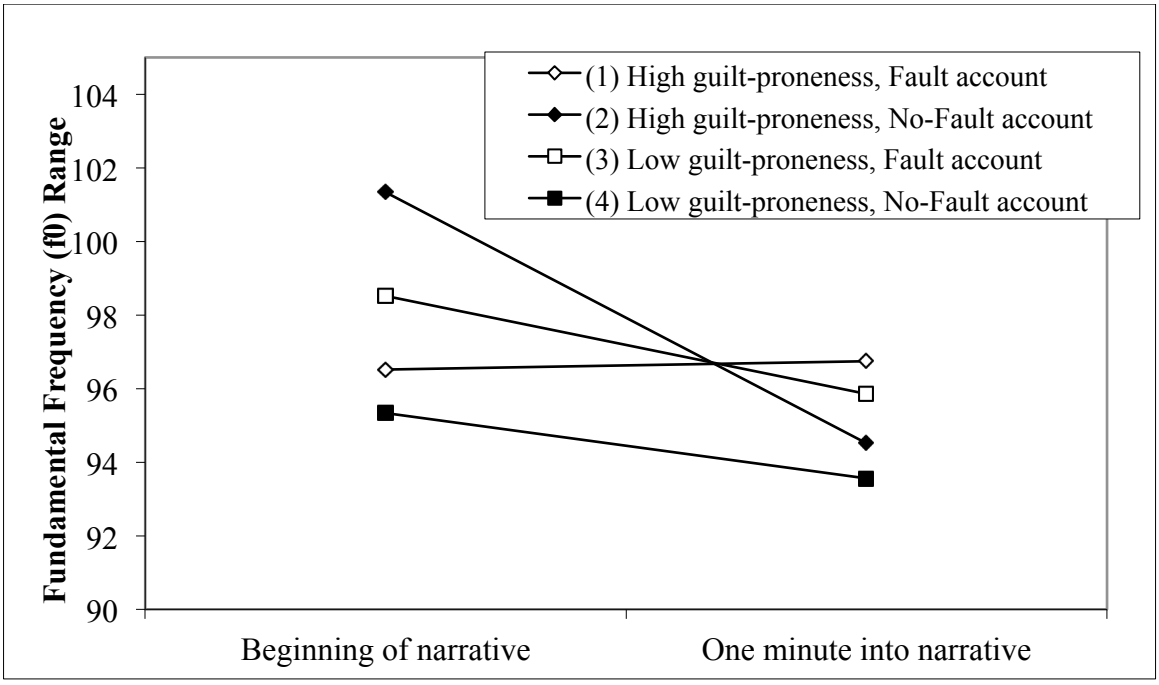

Figure 2. Guilt-proneness and linear declines in distress over the course of narration, for my-fault and not-my-fault stories

DISCUSSION

In this dissertation, I examined differences in more and less guilt-prone children's distress when they narrate experiences of harm doing. Narrating harmdoing experiences can promote children's moral development. Children reflect on, and grapple with, various facets of their experiences and construct understandings about themselves, others, and the moral world in general during narration (Pasupathi et al., 2017; Wainryb et al., 2005). However, these processes could be disrupted when children feel intensely distressed during narration. Theory and research suggest that the intensity of children's distress, its form, and changes in their distress could relate to the types of meanings that they consider during narration, their prospective well-being, and their susceptibility to feel distressed when they are later reminded of the event (Fivush et al., 2007; Kross et al., 2011; Wainryb & Recchia, 2012). As such, it is important to understand which factors relate to children feeling more versus less distressed when they narrate harmdoings.

The main factor I examined in this study was children's proneness to guilt. Two key findings were revealed: (1) more guilt-prone children feel more current distress than less guilt-prone children when they narrate harmdoings, but not more past distress; and (2) over the course their storytelling more guilt-prone children's distress is less likely to change in lasting ways than less guilt-prone children's distress, and this is particularly pronounced during their narration of my-fault harm stories.

Guilt-prone children may feel more current overall distress than less guilt-prone children when they narrate harmdoings, but not more past overall distress

This study's findings suggest that narration of past harmdoings may evoke more intense, current distress, but not past distress, for youth who are more guilt-prone than for youth who are less so. Distress has distinct aspects. Sometimes it is felt intensely and in the current moment. Alternatively, distress can be felt with a sense of distance in more moderate or weak intensities. Analyses revealed some support that more guilt-prone children feel more overall current distress than less guilt-prone children when they narrate their harmdoings; there was a trend for them to have greater aggregate f_0 range, and they were significantly more likely to reference their own negative emotions using present-tense language. These two indices of distress are well-suited to capture distress that is presently being felt. Fundamental frequency (f_0) is influenced by emotion-related physiological changes (Scherer, 1986). And of course when narrators say they "feel bad" they likely are distressed. Consider the following narrative, from a 15-year-old girl whose guilt-proneness was high—1.08 standard deviation above the mean for her age group. Her reference to a present-tense negative emotion in her my-fault narrative is italicized:

> I think it was fifth grade. One of my best friends wasn't being nice…and I hit her in the back of her head. I just kind of, like, clocked her. And that was probably not a thing I should have done. Like, *I still feel bad about it* even though I apologized a bunch. That's not like—I don't hit people, that's not, like, a thing I do. (My-fault harm account)

According to the narrator's account, her past distress is not only revisited, but is actually

relived during the experience of narrating. Recall of past negative experiences is a well-established paradigm to induce current negative emotions (Kross et al., 2011; Wainryb et al., in press). This study suggests narration of harmdoings may differently evoke distress for more and less guilt-prone youth. More specifically, children who are more guilt-prone may be more susceptible than those who are less guilt-prone to relive their past negative feelings once again when they recall and narrate their experiences of hurting others. This could be problematic, because children may often be reminded of their past experiences—when they interact with the person they hurt or encounter other similar experiences.

Although it is beyond the precise scope of this study, this narrative excerpt also raises questions about how distress may lead to (or reflect that) problematic meaning-making is taking place. For example, in the narrative excerpt above, the participant is still feeling distressed, and she is making identity-relevant connections between her harmful actions and her more enduring sense of herself as a moral person. She is carrying the experience forward with her in lasting ways. An interesting direction for future work would be to focus more precisely on the types of meanings that tend to arise when narrators feel more and less currently distressed when they narrate harmdoings, as well as relations to other developmental sequela (e.g., prospective well-being).

In contrast with finding that more guilt-prone children are significantly more likely than less guilt-prone children to mention a present tense negative emotion, and the trend for aggregate fundamental frequency (f_0) range in the same direction, analyses of the other two indices of overall distress did not reveal significant effects of guilt-proneness. That is, more guilt-prone youth did not reference a greater frequency of their

own negative emotions and were not rated as globally more distressed than less guilt-prone youth. This may be because these two indices of distress did not distinguish between current and past distress. Recalling *past* feelings of distress may be similar for more and less guilt-prone youth. Distress at any point in time is influenced by a variety of factors (e.g., dispositional, situational, developmental). One possibility is that more and less guilt-prone children feel similar types and intensities of distress during their harmdoing experiences, and they are equally likely to recall these past feelings of distress during their narration of these experiences. Both groups of children may feel elevated levels of some current distress while narrating these past negative experiences—since narrating negative events usually evokes current negative emotions (Pasupathi, 2003)—but it appears that only for the more guilt-prone children are these feelings intense and immersive. In other words, it may be that for less guilt-prone children, past distress is recalled with a sense of distance that prevents it from being entirely relived. Such questions could be examined in future research.

How about under conditions when these feelings are more and less appropriate?

I had hypothesized that when youth narrated harmdoings when guilty feelings seemed unwarranted, more guilt-prone children would be significantly more distressed overall than less guilt-prone children. Having a high proneness to guilt entails feeling guilty in situations when it might be inappropriate for the circumstances (Tilghman-Osborne et al., 2012). For this study, I chose a "less appropriate" condition as one when children think that they were *not* at fault for the harm that stemmed from their actions.

Findings revealed no support for the idea that more guilt-prone youth are particularly more distressed than less guilt-prone youth when they narrated not-my-fault harm experiences.

Null findings for the interaction between guilt-proneness and fault condition might have emerged because in both of the fault conditions, children engaged in actions that led to harm of others. It might be that it is only during narration of experiences when guilty feelings are even more inappropriate that we find the expected differences in distress for more and less guilt-prone youth. Guilty feelings may be particularly inappropriate when children tell narratives about times when they were the targets of harm (i.e., in the role of the victim) or when they were bystanders when someone else got hurt. Guilt-relevant feelings during the narration of these kinds of experiences may be particularly out of place and maladaptive.

My focus was in how fault condition moderated the effects of being more or less guilt-prone. While analyses did not reveal these interactions, they did reveal main effects of fault condition for 3 out of the 4 overall distress codes. Evidence suggested that when children narrate my-fault harm accounts, they are more distressed than when they narrate not-my-fault harm accounts. Distress during narration of harmdoings can stem from a variety of factors: dispositional, situational, developmental, and meanings made during narration. These findings suggest that how children make sense of their fault may play a role in how distressed they are during narration of harmdoings. Children's my-fault and not-my-fault harm narratives differ in their content and structure (Bourne et al., 2017). Future research should explore how children's distress during narration of harmdoings is linked with narrating specific types of content and the structure that their stories assume.

What about youth of different ages?

There was no evidence—not even trends—suggesting that youths' guilt-proneness and their distress during narration of harmdoings varied across the school years. I reran analyses without the 5-year-olds to test whether the null effects of the interactions (guilt-proneness by age group interactions) were due to the poor reliability of the 5-year-olds' guilt-proneness measure. The pattern of results did not change. Thus, null effects were unlikely a function poor estimate reliability. Rather, across all ages, more and less guilt-prone youth show similar overall distress when they narrate harmdoings. In this study, the stable nature of differences between more and less guilt-prone children was striking given the wide age range of participants (ages 5 to 16). Prior work has demonstrated that children's emotional traits become more stable and predictive with development (Neppl et al., 2010; Shiner & Caspi, 2012). Yet, despite this increased stability and various developmental changes in children's understanding of guilt (Muris & Meesters, 2014), their emotional regulation (Silvers et al., 2012), and in how they narrate accounts of harmdoings (e.g., Wainryb et al., 2005), it appears that children's guilt-proneness plays a similar role in the distress of younger and older youth. Such findings are consistent with other research has found no age differences in the correlates of guilt-proneness (e.g., Ferguson et al., 2000; Hughes, Gullone, & Watson, 2011; Tangney, Wagner, Hill-Barlow, Marschall, & Gramzow, 1996).

Although it was not the focus of this study, analyses did reveal some main effects of age group. During their narration of harmdoings, 9-year-olds were significantly more distressed than 5-year-olds according to two of the four overall distress indicators (number of own negative emotions referenced, global distress), and they were

significantly more distressed than 16-year-olds according to two of the four indicators (aggregate f_0 range, global distress). The growth analysis of change in f_0 range over time also revealed that 9-year-olds were more distressed than 16-year-olds at the start of their narratives. Future research should examine the meanings and evaluations that 9-year-olds form in their narrative accounts of harmdoings to expand our understanding of why youth in middle childhood are particularly distressed during narration. They may be old enough to draw self-relevant implications of from harmdoing experiences, but too young to successfully regulate the distress that arises from considering they are flawed moral beings. There is also some evidence that youth in middle to late childhood are more likely than younger and older youth to say that people should suppress their own desires and goals when they conflict with their friends' desires and goals (Komolova & Wainryb, 2011). When 9-year-olds tell narratives about times when they did prioritize their own goals or perspectives over others', it could therefore be particularly distressing.

How does distress change over the course of narration for more and less guilt-prone youth?

Distress during narration can be conceptualized as a global, overall phenomenon or as changing over the course of narration. In terms of temporal change, I theorized that more guilt-prone children's distress would remain mostly stable over the course of their storytelling, whereas less guilt-prone children would have distress that fell over the course of their storytelling. This expectation was based on the idea that resolutions and self-insights tend to be considered near the end of narratives, and these sorts of meanings might play a role in how children feel at the close of their stories. Similar to the findings

for overall distress, there was more support for this hypothesis for analyses of changes in current distress (i.e., f_0 range) than for changes in distress that did not differentiate between current and past distress (i.e., coded contours). For analyses of coded contours, children's guilt-proneness was not significantly related to how their distress changed over the course of narration. In addition to the explanation above, differences could be due to the coded contours not being fine-grained enough to capture how distress was changing. Similarly, none of the contours depicted quadratic change, and changes in f_0 range over time showed that nonlinear changes over the course of narration occurred for some youth.

While there were null effects for interactions between children's guilt-proneness and fault condition on their *overall distress* during narration of harmdoings, there was more support for the idea that more and less guilt-prone youth experience current distress during narration in temporally distinct ways depending on the fault condition. Results of the growth model analysis showed that more and less guilt-prone children had similar levels of current distress at the start of their narratives. Less guilt-prone children's distress decreased across narration for both my-fault and not-my-fault stories, with significant decreases in the my-fault case. Further, for children with a low guilt-proneness there were not significant quadratic rebounds in narratives under either fault condition, which suggests that decreases in distress extended through the end of the narrative. These findings suggest that for children who are less guilt-prone, narrating harmdoings is not an entirely distress-free experience. Rather they start their narratives feeling current distress at moderate levels, and, presumably, the process of narration helps them to transform their current feelings of distress into something that can be reflected on with some objective distance and that are less intense. This fits with the idea that negative emotions

need to be acknowledged and expressed, but not lead to rumination, to promote the best mental health and physical outcomes (Kross et al., 2011; Smyth & Pennebaker, 2008). Feeling less distressed by the end of storytelling may also allow youth to explore a variety of facets of their experiences, including the victim's perspective and broader implications and insights. It might also promote their future well-being, and set them up for feeling better when they are later reminded of the experience (Fivush et al., 2007).

Children with a high guilt-proneness also had distress that decreased during their narration of not-my-fault events, yet the rate of decreasing distress slowed down over the course of narration. This suggests that there may be some moments during narration of not-my-fault experiences when youth with a high guilt-proneness feel better, but these changes do not last. It is possible that for high guilt-prone youth, there may be a certain intensity level that their current distress does not fall below in the context of narrating harmdoings. It might not feel "right" to more guilt-prone youth to feel only very little (or a complete absence of) distress when they talk about harmdoings, even when they think it was not their fault. So when their distress reaches the lower boundary of their comfort or familiarity level, it asymptotes. Such findings suggest that in the not-my-fault context, children with a high guilt-proneness may form meanings early in their narratives that help reduce their distress, but then later in the narratives, these meanings are "undone" or no further distress-reducing meanings are considered. For example, more guilt-prone youth may describe misunderstandings or the clashing of legitimate goals in the first part of their narratives, but then they focus on the negative consequences to the victim at the end of their stories. When children with a high guilt-proneness narrated my-fault harm events, their distress did not change over the course of narrating. One interpretation is that when

they narrate my-fault harm, more guilt-prone children struggle to transform their current distress into distress that can be objectively analyzed with some distance. This suggests that every time more guilt-prone children recall and narrate a specific my-fault harmdoing, the distressing feelings that accompany that memory will be of a similar nature and similarly intense. The feelings are not changed or resolved. Altogether, the study's findings raise questions about how more guilt-prone children are narrating their harmdoing experiences. What contents are they exploring? How are their narratives structured?

Which other factors are related to children's distress at the beginning of their narratives?

One benefit to using growth modeling is that it can reveal how psychological phenomena are related to how stories begin and to how they change over time. I set up my growth model so the intercept represented the first 5 seconds of narrating. At the start of their narratives, 16-year-olds were less distressed than 5- and 9-year-olds (discussed above), and males were less distressed than females. F_0 range takes into account differences in mean pitch changes, which are found for males and females after puberty (Hollien, Green, & Massey, 1994). Thus, pubertal changes unlikely explain these sex differences. Sex differences were also found for aggregate f_0 range. These two findings suggest that boys may be less distressed than girls when they narrate their harmdoings. This could be due to a number of factors. There is some evidence that girls explore emotional facets of their experiences more often than boys in their narratives (Fivush, 2011). This focus could lead girls to be more distressed than boys when they talk about

their harmdoings. It is also possible that boys and girls nominated different kinds of harmdoing experiences, with girls recalling and selecting experiences that were more emotionally laden. I only included sex as a predictor for analyses of f_0 range because prior research suggested it was necessary to control for sex when examining vocal pitch (e.g., Baucom et al., 2012). Examining whether boys and girls have distinct intensities of distress when they narrate harmdoings according to other indicators of distress would be useful in clarifying sex differences in children's distress.

Children who were more distressed at the start of their narratives told longer narratives (i.e., narratives that contained more 5-second blocks). A similar finding was found for overall distress. Word count was added as a covariate in models predicting the number of references narrators made to their own negative emotions, and the presence of at least one of their own negative emotions in the present-tense. For both of these outcomes, narrators who told longer narratives were also more distressed. This suggests that high distress may be felt when narrators are constructing narratives in which they ruminate about emotionally laden issues.

Limitations and conclusions

There were a number of null results in this study. Null results emerged for analyses of distress when it was manifested as blends of current and past negative feelings, for all of the guilt-proneness by age group interactions, and for the guilt-proneness by fault condition interactions predicting overall distress. These results suggest that children's guilt-proneness plays only a minimal role in children's distress when they narrate harmdoing experiences. And when guilt-proneness does play a role, it tends to

behave similarly across the school years and under different conditions. The more consistent and robust effects of age group and fault condition suggest that developmental factors and situationally embedded meanings are more closely linked with children's distress during their narration of these experiences, and are more fruitful directions for future research than dispositional characteristics.

Another limitation of the present study was the low internal consistency of the 5-year-olds' guilt-proneness measure. Although reliability improved with a 2-item version of the questionnaire, it was still poor. The dearth of significant findings may be linked with decreases in statistical power that were due to the poor internal reliability of 5-year-olds' guilt-proneness (Heo, Kim, & Faith, 2015). However, this seems unlikely since analyses conducted without the 5-year-olds revealed no change in the pattern of results (though power decreased due to the reduced sample size). Future studies may consider assessing young children's guilt-proneness using a different method, or may choose to study correlates of guilt-proneness in samples with children who are older than age 6 or 7.

The goal of this study was to understand variations in the nature and intensity of children's distress when they told narratives about past experiences in which they hurt others. I explored how one factor—children's guilt-proneness—related to these variations. Findings suggests that more guilt-prone youth feel more current, immersive forms of distress (but not past distress) than less guilt-prone youth when they narrate their harmdoing experiences. This distress is also more temporally stable over the course of narration, particularly when more guilt-prone youth narrate my-fault harm experiences. Since current feelings of distress may interfere with narrative processes whereby children learn from their harmdoing experiences, more guilt-prone youth may benefit from talking

about their experiences with attentive listeners who help coregulate children's distress. Skilled listeners can help youth avoid patterns of maladaptive rumination, help them to reflect on their distress with some distance rather than in immersive ways, and provide support that leads to reductions in children's distress. Such scaffolding may protect youth from feeling elevated distress when they are later reminded of these experiences, promote their prospective mental and physical health, and further children's developing sense that they are flawed but still fundamentally good moral beings.

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