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How Neglect and Punitiveness Influence Emotion Knowledge

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Abstract

To explore whether punitive parenting styles contribute to early-acquired emotion knowledge deficits observable in neglected children, we observed 42 preschool children's emotion knowledge, expression recognition time, and IQ. The children's mothers completed the Parent–Child Conflict Tactics Scales to assess the recent use of three types of discipline strategies (nonviolent, physically punitive, and psychological aggression), as well as neglectful parenting. Fifteen of the children were identified as neglected by Child Protective Services (CPS) reports; 27 children had no record of CPS involvement and served as the comparison group. There were no differences between the neglect and comparison groups in the demographic factors of gender, age, home language, minority status, or public assistance, nor on IQ. Hierarchical multiple regression modeling showed that neglect significantly predicted emotion knowledge. The addition of IQ contributed a significant amount of additional variance to the model and maintained the fit. Adding parental punitiveness in the final stage contributed little additional variance and did not significantly improve the fit. Thus, deficits in children's emotion knowledge may be due primarily to lower IQ or neglect. IQ was unrelated to speed of emotion recognition. Punitiveness did not directly contribute to emotion knowledge deficits but appeared in exploratory analysis to be related to speed of emotion recognition.

Keywords

Neglect; Maltreatment; Punitive parenting; Emotion knowledge; Emotion recognition

Introduction

Emotion knowledge is, in part, the ability to discriminate emotional expressions and the contexts in which they are appropriate. Such skills underlie children's growing abilities to understand and predict the behavior of others and are a subset of the larger domain of skills comprising emotional competence [1]. While emotion knowledge develops throughout childhood [2,3], understanding of basic emotion vocabulary, common facial expressions, and simple emotion/context associations are learned rapidly during the preschool years, reaching adult-levels for some expressions by school age [4,5]. In this paper, we defined children's emotion knowledge (EK) in terms of three basic features: emotion labels, expression recognition, and emotion-context association. While these are not the only aspects of EK in young children [for example, see Cole [2] on knowledge of anger/sad inhibition strategies in 3–4 year olds], they are readily assessed, have been the most studied in younger children, and arguably form the basis of more complex understanding of the consequences of specific

emotions and how to manage them in context. EK, independent of general intellectual ability, is related to future social and emotional functioning and may help children manage their own emotions appropriately [4,6–8].

EK is likely acquired both directly through socialization of state language as well as indirectly through experiencing emotions and their consequences in social interaction with parents [9, 10], but studies of specific aspects of socialization related to EK learning are still sparse and largely limited to middle class populations. While the nature and quality of emotion-related language have been the most studied with respect to EK, characteristics of a child's family and parent-child relation are likely to be important [11]. Disordered parent-child relations therefore are of particular interest with respect to EK. A number of studies report that neglected children show poorer EK than nonmaltreated children after controlling for the effects of IQ during the preschool and early school years [12–17].

Harsh, abusive parenting also may interfere with emotion recognition and the processing of negative emotions specifically. Physical abuse, in particular, appears to sensitize children to anger, leading to its recognition even when cues are ambiguous [18]. High levels of physical punitiveness (spanking, slapping, hitting the child with open hand or an object) and psychologically aggressive (swearing, threatening to harm) parenting may have similar effects on children's emerging emotional knowledge, even if physical abuse was never alleged. These types of harsh parental behavior may also interfere with the recognition and discrimination of negative expressions as abused children tend to misattribute hostile intentions of others, a risk factor linked to increased aggressive behavior [18]. Many children, including those who are neglected, are exposed to levels of punitive parenting that either go undocumented in the public record or do not meet the legal criteria for physical or psychological abuse. Physical punitiveness, verbal harshness, and other forms of harsh punitive parenting thus may disrupt the emotion learning of all children, whether or not they are involved with the child welfare system. Children who experience harsh, punitive parenting might therefore also show deficits, independent of any neglectful experiences.

The specific contribution of harsh punitive parenting independent of neglect to children's EK has not been previously examined, but is an important issue, especially within the neglected population. High parental harshness in neglected samples has been noted in the literature and may indicate low-level, co-morbid physical abuse or a risk factor for its occurrence. A number of behavioral outcomes have been shown to be worse when abuse and neglect co-occur [19–21]. Consequently, it is important to try to examine the influence of punitiveness on EK, apart from neglect.

To study these issues, we examined whether harsh punitive parenting contributed to deficits in early EK after controlling for the effects of neglect and IQ. We used a three-component, age appropriate task [5,17] to assess 4-year-old children's ability to label, recognize and match expressions to context. Both IQ and neglect affect scores on this task [17]. We obtained the EK score by combining the scores on labeling, recognizing and applying to situations [17, 22]. In addition, we obtained measures of the children's IQ as in our previous work and that of others [12,15,17,22]. Parental discipline was assessed through a parent self-report instrument designed to measure parental use of punitive and nonviolent discipline in order to assess whether harsh, punitive parenting would disrupt children's EK. We hypothesized that reliance on harsh, punitive parenting would account for variance in EK beyond that accounted for by neglect and IQ.

Method

Participants

Forty-two children recruited from urban neighborhoods in central New Jersey and Philadelphia participated as part of a larger longitudinal study examining emotional development in maltreated children [17,23]. All were recruited from preschool and community programs known to serve maltreated children and their families among their clients. Fliers were sent home from school or were distributed directly to parents. All parents signed consent forms approved by the University's IRB indicating that the study was about children's emotional development and that Child Protective Services (CPS) records would be examined for information about their history of neglect or abuse. The longitudinal component of the study was emphasized to parents who agreed to provide a network of contacts to assist in contacting them in the event of moves or change in telephone numbers. Foster children were excluded from the longitudinal study as were children with substantiated physical or sexual abuse ($N = 13$). This exclusion was used because these children were more likely to be removed from the home and have been subject to serious physical injury, thus likely altering other aspects of the child's psychological functioning besides EK.

Fifteen children (5 females, 10 males) were neglected as verified by CPS records. These children had at least one substantiated CPS report in the prior year and/or an open case record at the time of enrollment. Records were accessed through a state-wide (NJ) and citywide (Philadelphia) computer database allowing us to match case records on multiple criteria including names of all children in the household, parents, residence etc. As the records were searched after families had signed consent forms and provided contact information, the confirmation of family information was possible. Matches were verified with local CPS offices, if there was any question. Abstraction of these records, including all substantiated and unsubstantiated allegations, indicated that the cases in this study had an average of 1.8 ($SD = .68$; range 1 to 6) allegations of physical and/or supervisory neglect in their case records.

The remaining 27 children (14 females, 13 males) who were of the same age as the neglected children but had no CPS record at enrollment or at 1-year follow-up were the control or comparison group. Records were maintained in each system for 3 years after the most recent allegation. While this does not guarantee that the control group *never* had a neglect allegation, it is unlikely that they did, as the children were 4-years-old at the time of enrollment. Comparison mothers also stated that they had never been referred to CPS.

Demographics

Overall, the sample was 87% minority with 63% African American, 20% Hispanic, and 4% mixed minority heritage. The neglect group did not differ from the comparison group on child or any major demographic variable. Specifically, the neglected (N) and comparison (C) groups did not differ on gender (C : 33% vs. N : 52% female, $\chi^2(1) = 1.33$, ns), minority status (80% C vs. 85% N , $\chi^2(1) = .19$, ns), age (C : $M = 48.67$ months, $SE = .98$ vs. N : $M = 49.11$, $SE = .38$; $t(40) < 1.0$, ns). The majority of the children in each group were born to two US-born parents (80% C vs. 100% N), and English was the primary language of the child (85% C vs. 100% N). The neglect group also did not differ from the comparison group with respect to maternal full-time employment (30% C vs. 20% N), mother married/co-habiting (57% C vs. 47% N), years of maternal schooling (C : $M = 12.1$, $SD = 1.50$ vs. N : $M = 11.6$, $SD = 1.50$ years), or receiving any public assistance (C : 62% vs. N : 67%).

Procedures

Children's EK was assessed on average at 49.0 months of age ($SD = 2.5$) by trained examiners who were blind to their CPS status. They were administered an EK assessment previously

developed for children aged 3 to 5 years from both middle class and urban, poor populations [5,22]. All children were administered the Test of Nonverbal Intelligence for Children (TONI-3) to estimate IQ [24] as part of the longitudinal protocol in a separate visit following the emotion knowledge assessment and administered by a different examiner who was blind to their EK performance. TONI-3 meets psychometric standards for reliability and validity and correlates well with other IQ measures, such as the WISC full scale and verbal IQ [25]. A language-unbiased measure of IQ was important in the larger study due to the inclusion of children from bilingual homes, and the nonverbal, visual perceptual skills involved in the expression recognition task. At the same time the children were undergoing assessment, mothers were interviewed in a separate room, by the local study coordinator, who was blind to EK performance.

Emotion knowledge

Three tasks were administered in a fixed order: (1) emotion labeling, (2) recognition of emotion expression, and (3) matching emotion expressions to context. Detailed stimulus descriptions and specific procedures for each task are available elsewhere [5,22]. For the labeling task, monochrome photographs of a female or male minority child (named “Felicia or Felice”) depicted six facial expressions: happy, surprise, anger, sad, fear, and disgust taken from a standard set of independently verified Facial Action Coding System photographs previously used with children [12,26]. Children were shown the photographs in a fixed order so they would encounter first the most familiar expressions that typical 4-year-olds are able to identify. The first three faces were happy, angry, and sad. Following the developmental order that labels are acquired, the expressions of surprise, fear and disgust were presented last [5]. Order effects have not been previously observed so a fixed order allowed us to maximize children’s responsiveness to the examiner and the task by having “easy” items first. The examiner presented each photo and asked: “What kind of face is Felicia/Felice making? How does she/he feel?” Children were scored as correct if they gave the target label or acceptable synonyms such as “mad” for anger, “scared” or “afraid” for fear, “shocked” for surprise, and “yucky” or “nasty” for disgust. Children were allowed to respond at their own pace. Speed of response was not emphasized. Children were also told that it was ok, to say, “Don’t know” at the outset of the procedure. Thus, rapid responding, which might tend to inflate errors, was not emphasized. Scores could range from 0 to 6. No feedback was given after responding.

To assess emotion recognition, the same six photographs were randomly placed in front of the child and the examiner told the child to point to the target face. The examiner asked, “How does Felicia look when she’s ___?” Since the term “disgust” was unlikely to be known to children but the term “yucky” was, for the disgust expression, the examiner stated “...when Felicia sees something yucky.” After the complete series, the pictures were reshuffled and the task was repeated. The recognition score was the number of expressions correctly recognized on both trials, with scores ranging from 0 to 6. Specifically, a correct response on both trials was required to ensure that the choices were reliable, thus reducing the probability of correct guesses.

The latencies to produce correct responses on the recognition task were measured and recorded. This variable was of interest as a measure of processing time on *correct* trials. We reasoned that longer latencies might indicate difficulties in retrieval or discrimination, while more rapid times might indicate impulsive responding. Alternatively, longer latencies might also indicate more cautious responding so as to avoid an incorrect response. Response time was recorded from the time that the examiner stated, “Point to the ____ face” until the child pointed or made a verbal or nonverbal response that they did not know, or wanted to go on.

To assess children’s ability to match expressions to context, the examiner read each child ten brief stories, illustrated by black and white line drawings in which the facial expressions of the

people were not shown [5,17]. To assess ability to link emotion expressions to contexts, all six expressions were again randomly arrayed at the beginning of each story. The examiner then told the child, "Show me the face Felicia will have in this story. What will she look like?" After the child pointed to a picture, the examiner said, "Good. Did Felicia make any other faces?" If children said "yes", the examiner asked them to point to a second face. Selection of the target emotion for each context in response to either query was counted as a correct response. The correct score range was 0 to 10.

We obtained an overall EK score by combining the scores on labeling, recognizing and matching to situations. Labeling, recognition, and matching scores were positively correlated and loaded on a single factor in a principal components analysis, thus justifying a summary score. Based on previous work [17,22] scores for each task were standardized and then summed to yield a total EK score. The alpha coefficient for the EK score was .60, representing an acceptable level of internal consistency comparable to that obtained for similar EK measures with young children [4].

Harsh Parenting

Mothers reported on their use of discipline strategies using the Parent–Child Conflict Tactics Scale (CTS-PC) [27]. To assess physical and verbal punitiveness as well as non-aggressive forms of discipline in all children, the CTS-PC was administered to mothers as an interview. This interview followed a standard format, surveyed the use of discipline strategies in the previous year, and was administered during the third visit of the study so that parent–interviewer rapport had already been established. This scale is one of the most commonly used report measures of psychologically harsh and abusive parenting, has been used on a representative US sample, and shows acceptable psychometric properties. Its reliability and construct validity have been established and it discriminates parents with an admitted history of maltreatment from samples without a prior history [23,27,28]. The CTS-PC scales include items on nonviolent discipline, and a variety of physical and psychologically aggressive discipline techniques. Reliability of the scales was measured by the alpha coefficient. For the combined physical and psychologically aggressive scale in this sample, the alpha was .70 for harsh, punitive parenting. Alpha for the nonviolent discipline scale was .65. Due to the high association between the physical assault and psychological aggression scales ($r = .64, p < .001$), the scores on the two scales were summed to yield a total harsh discipline score.

CTS-PC also has five supplemental questions for neglect that ask about severely neglectful parental care with reference to the child's needs. The neglect component of the scale was administered as a reliability check for neglected status and to screen the control group for unreported severe neglect. The CTS-PC neglect subscale was found to discriminate the parents of the neglect group, who endorsed 1.25 neglect items on average, in contrast to the parents of the comparison group, only one of whom endorsed a single item. Thus, CTS-PC neglect scores confirmed the agency-determined neglect and also confirmed that children in the comparison group were likely unexposed to the severely neglectful parenting that characterized the neglect group.

Neglect

To scale the persistence of neglect, the total raw number of neglect allegations from the CPS record was coded with 0 indicating no neglect allegations (comparison group), 1 as a single allegation, and so forth to the maximum number of allegations in the sample. The distribution of neglect allegations was bimodal, with most of the sample having either no, or 3 allegations. To better reflect this distribution and reduce skew, the neglect variable was coded as an ordinal variable with the following categories: 0 (control), 1 (=1), 2 (=2 or 3), 3 (=4 or more). The resulting measure provides a gross index of the degree to which neglect occurred as a single

incident or was ongoing. We expected that more persistent neglect would be related to poorer EK.

Results

Analytic Plan

To assess the contributions of demographic and parenting measures on emotion knowledge, two regression analyses were conducted. The first analysis identified the demographic variables associated with EK in this sample. Then, those identified variables were included in the second regression to control for the effects of these demographic measures. In the first analysis, the variables of gender, IQ, maternal employment, maternal schooling, and whether or not the family was receiving public assistance were entered into a backwards stepwise regression. The analysis began with a full or saturated model and variables were eliminated in an iterative process. We tested the fit of the model after the elimination of each variable. The analysis was completed when no more variables were eliminated from the model. The results therefore identified a set of independent variables that significantly contributed to the regression and provided the best overall fit.

In the second analysis, hierarchical regression was used to model the relations between EK and the predictors of neglect, harsh parenting, IQ and the surviving demographic variables from the first regression. IQ was entered in the first stage of modeling, given the previous findings of the relation of IQ to EK. Then the measure of neglect was entered in order to assess whether it separately accounted for additional variance in EK not explained by IQ. Then the measures of harsh parenting were entered to assess their contributions to emotion knowledge. The last stage was to enter the surviving demographic measures.

Finally, an ANCOVA was used to assess neglect group differences in the recognition latency while controlling for IQ. The effects of the parenting measures on recognition latency were assessed using hierarchical linear regression analysis, entering the predictors of harsh parenting in the first stage and nonviolent parenting in the second stage.

Mean Data and Correlations

The means and standard deviations of the scores for EK, Harsh Punitive Parenting and IQ for all children are provided by neglect status in Table 1. The neglect and comparison groups did not differ in harsh parenting ($N: M = 21.24$ vs. $C: M = 22.62$, $t(40) < 1.0$, ns) or nonviolent discipline ($N: M = 17.29$ vs. $C: M = 17.00$, $t(40) = 2.25$, ns). The average IQ for the sample was 93.86 ($SD = 7.04$) and was used as a covariate in evaluating the group differences in Emotion Knowledge and Punitiveness. There were no significant mean differences between neglected and comparison children overall or by gender on any of the demographic measures or the IQ measures. A comparison of these scores of emotion knowledge and punitiveness scores was made with previous findings with urban minority children [22]. The means of the comparison group of the current study were consistent with those previously reported.

For the entire group, Table 2 presents the correlations among the three variables of interest as contributors to EK. Neglect and IQ were each significantly correlated with EK as hypothesized; both $r(42)'s \geq .33$, $p's \leq .001$; more neglect allegations were associated with poorer scores and higher IQ with better scores. This was true for both females, $r = .57$, $p < .02$, and males, $r = .40$, $p = .06$.

The extent of neglect showed little relation with CTS-PC scores, supporting the view that neglect and discipline techniques reflect relatively independent aspects of parenting. The two CTS-PC scores were significantly related to each other and each showed a negative relation to EK, such that greater punitiveness, whether harsh or nonviolent, was related to poorer EK.

These relations between the separate subscales and EK also supported our decision to combine physically punitive and psychologically aggressive parenting. The only other significant relations observed were between the CTS-PC scores and IQ. Lower IQ was associated with more discipline. Specifically, a greater amount of nonviolent discipline was significantly associated with low IQ.

Stepwise Regression Analyses

The backward stepwise regression analysis examined the relations of gender, IQ, maternal employment, maternal schooling, and public assistance on EK. The analysis examined the fit of the proposed models to the data. Table 3 provides the standardized beta weights for the variables remaining in each successive model. The first model examined all five measures and was not significant ($p < .05$); therefore the least contributing variable (gender) was removed. Model 2 also was not significant and so the least contributing variable (maternal employment) was removed. Model 3 was not significant so the least contributing variable (public assistance) was removed. Model 4 provided a significant fit, $F(2, 39) = 3.89, p < .05$, with two remaining demographic measures, IQ ($\beta = .27, ns$) and mother's education ($\beta = .25, ns$) accounting for 17% of the variance. A more parsimonious fit of the data was achieved with the fifth and final model, showing that IQ was the sole predictor of EK among the demographic measures, $F(1, 40) = 4.89, p < .05$ accounting for 11% of the variance, with a standardized regression coefficient (β) of .33, $p < .05$. Higher IQ was associated with higher EK. Based on the results of this analysis and the previous literature, IQ was included in the hierarchical regression analysis of the neglect and parenting measures. Due to the lack of significant contributions to the model, the variables of gender, maternal employment, maternal schooling, and family public assistance were not included in the subsequent analysis.

Hierarchical Regression Analysis

A hierarchical regression analysis examined the relations of IQ, neglect, harsh parenting and nonharsh parenting to EK. Table 4 summarizes the results of the hierarchical model including the standardized regression coefficients (β s), the change in R^2 for each stage, and the total model R^2 for the prediction of EK. The total model significantly predicted EK, explaining 26% of the total variance, $F(4, 37) = 3.21, p < .05$. However, not all of the predictors were significantly associated with EK. In stage 1, as expected, IQ alone accounted for 11% of the variance from the stepwise regression. The stage 2 model, which added neglect to IQ, also was significant, $F(2, 39) = 5.72, p < .01$, accounting for 22% of the variance in EK. While neglect had a significant contribution ($\beta = -.35, p < .05$), the contribution of IQ was reduced to nonsignificance ($\beta = .27$). In model 3, the contribution of harsh parenting was added to IQ and neglect. While the model retained significance, there was no contribution of harsh parenting (R^2 change, ns). In model 4, the measure of nonharsh parenting was added. Again, although the model was significant, there was no contribution by nonharsh parenting (R^2 change, ns). The most parsimonious model is model 2, with neglect and IQ contributing to EK.

Recognition Time

We examined the latencies to correct recognition in order to assess whether the groups differed in the time it took to identify the facial expression stimuli. Children's latency to recognition was unrelated to IQ, $r(42) = -.17, ns$, or to neglect status, $F(1, 39) = 0.003, ns$. Neglected children ($M = 27.24, SE = 2.95$) were no different than control children ($M = 27.03, SE = 2.18$) in the time they spent on the recognition task. This observation suggests that the neglect group was neither more impulsive nor slower in making their choices.

While there were no differences between the control and neglect groups in their recognition time, the neglect group was less likely to be correct. Given the small sample size of the neglect group ($n = 15$), we did not consider these children further. We conducted further exploratory

analyses to see if punitiveness had differential effects on correct recognition within the comparison group. A backward stepwise linear regression analysis examined the relations of nonviolent parenting and harsh parenting on recognition latency for the comparison group. Table 5 provides the standardized beta weights for the variables in the model. For the control group, the first model that included the two parenting measures was not significant, $p > .05$. The analysis then removed the variable with the smallest contribution, which was nonviolent discipline ($\beta = -.28$, ns). The second model was a significant fit, $F(1, 25) = 4.44$, $p < .05$, with one measure, harsh discipline ($\beta = .39$, $p < .05$) accounting for 15% of the variance.

Discussion

We examined whether harsh punitive parenting contributed to deficits in early emotion knowledge. To study this issue, we used a three-component task to assess the abilities of 4-year-old children to label, recognize, and match emotion expressions to context. In addition, we controlled for the effects of neglect and IQ. Several findings emerged from our study. First, demographic factors accounted for little variance in emotion knowledge while IQ accounted for the most variance. Second, while IQ was a strong contributor to emotion knowledge as previously reported in the literature [14,15,17], neglect was also significant and contributed independently to the explained variance. However, harsh, punitive and nonviolent discipline as reported on CTS-PC contributed little additional variance. Thus, poorer emotion knowledge was a direct function of greater neglect and lower IQ, regardless of the type of discipline children received.

Because neglected children often experience both punitiveness and neglect, assessment of their independent or potentially additive effects is important from an intervention standpoint. Yet, physical punitiveness and verbal harshness are unlikely to be reported systematically in the case records of neglected children if they are not sufficiently severe enough to meet criteria for legal substantiation of physical or psychological abuse. In this study, we addressed this problem by measuring the level of harsh, punitive, and nonviolent parenting of both children with substantiated neglect as well as in a demographically matched comparison group without substantiated neglect or physical abuse. Doing so allowed us to assess the impact of harsh, punitive parenting and nonviolent discipline on emotion knowledge independent of neglect in all children.

The use of a comparison group always raises the issue of whether it truly is a 'non-neglected' group. While unreported neglect in the comparison group is possible, screening of neglect by the CTS-PC suggests that the control group was free of the severe neglect that led to child protective service status, confirming parental self-reports and the record search. Given the multi-level screening of the controls in this study, we are confident that this group is as neglect-free as is possible to obtain.

While punitiveness did not impact upon emotion knowledge or recognition latency in this study, a history of physical abuse has been shown to interfere with emotion recognition and the processing of negative emotions specifically. Physical abuse sensitizes children to anger [18], but may also make them more likely to over-attribute anger to other negative expressions leading to errors of discrimination. Punitiveness, which did not meet protective service thresholds for physical abuse, did not appear to have this effect on either emotion knowledge scores or recognition latency when the full sample of comparison and neglected children were considered. When recognition latencies of comparison children alone were examined, however, punitive discipline appeared to have a detrimental effect, with greater punitiveness leading to longer time to correct recognition. In contrast, nonviolent parenting had no detrimental effects. While exploratory, these results suggest that harshly punished comparison children either were more cautious in responding (afraid to err) or that the discrimination was

more difficult for them, as suggested by the findings on abuse and anger discrimination [29]. Thus, punitiveness has some effect on comparison children, but when neglected children are included in the analysis, this effect is not sufficiently large to be detectable with our sample size.

While our sample size did not have the power to test the interaction of punitiveness with neglect status, it remains an important question. Children exposed to physical abuse have been shown to be hyper-vigilant to negative emotions [18,30]. The combination of neglect and high punitiveness may therefore have effects that are distinct from that of the non-maltreated group. A neglectful and punitive parent may prime children to respond more rapidly, perhaps impulsively, to facial cues. Poorer emotion knowledge coupled with a tendency to respond impulsively to negative cues would be likely to lead to poor ability to interact socially with peers as well as with adults including parents and teachers. Further examination of this question within the population of neglected children is of importance in understanding the dynamics of the maltreating parent-child relationship and how maltreated children respond to social cues of others in light of their experiences.

Given that stronger, unique effects of parental harshness on emotion knowledge and recognition latency were not observed in this study, there are some plausible explanations. In the lower SES urban population of this study, the level of punitiveness in the community-based comparison population was not different from that reported in the neglect group. It may well be that a comparison group selected for low punitiveness would show differences compared to the neglect group. Another possibility is that the effects of punitiveness on emotion knowledge are emotion specific. For example, the literature reports that physical abuse alters primarily children's sensitivity to anger rather than overall emotion knowledge [18]. However, parental harshness has been unrelated to general emotion knowledge in children drawn from similar population [22]. Being ignored by one's parent may simply be the more potent factor as dismissive parental responses to children's negative emotion have been reported to predict poorer emotion knowledge in a community sample of children [10].

While it is possible that our measure of harsh, punitive parenting, derived from the CTS-PC, represents an under-report of actual parental harshness, several facts argue against this. Prior studies support that CTS-PC is a well-designed measure that validly discriminates maltreating parents from comparison groups. This study successfully discriminated the comparison group from the neglect group using this measure. There is no reason to suppose that parents would selectively under-report their use of discipline strategies relative to neglectful behavior. Moreover, several features of our use of CTS-PC in this study should have mitigated a parental tendency to under-report. The study was voluntary, conducted independent of CPS agencies, and the CTS-PC was not administered until the third visit of this study, when parental trust, rapport with study staff, as well as their commitment to the ongoing study was likely to be greater.

While IQ had direct effects on emotion knowledge, lower IQ also appears to be a risk factor for greater use of parental discipline. Lower IQ and nonviolent discipline reports on CTS-PC were significantly correlated such that lower IQ was associated with greater discipline. The causal processes responsible for the relation between IQ and punitiveness and the nature of any interactive effects require additional study, as they may be complex interactive effects among these variables. Children with lower IQs may both elicit more parental discipline and have parents with lower IQ who have lower social resources and more limited set of parenting skills that may lead them to punish children more frequently. All of these factors are likely to affect emotion knowledge.

While brighter children were more sensitive to facial emotion cues, IQ was unrelated to recognition latency. These findings suggest that deficits in emotion knowledge are not due to more impulsive responding or to task difficulty.

Deficits in emotion understanding at age 4 years confirm the impact of neglect on the social development of children previously reported in the literature [14,16]. The findings increasingly support the need for efforts to improve children's knowledge and awareness of emotions during the preschool period when basic emotion knowledge is rapidly acquired. As more children of this age are now in center-based settings for either daycare or early learning intervention, the provision of such support of learning emotion knowledge may be an important prevention strategy. We would expect, for example, that poor ability to label and recognize emotion has negative influences on the dynamics of communication between neglected children and their families, peers, and teachers. Prevention curricula focused on emotional knowledge and regulation strategies, a number of which have appeared in the literature recently, directly address this area of deficit [4,7].

Collectively, the results suggest that assessment of harsh, punitive styles within the neglected population may be useful in understanding young children's emotion knowledge and processing of facially expressed emotion. Given the consistency of the models and trends, it will be important to continue to examine how and whether punitiveness as well as nonviolent discipline have a differential impact on emotion knowledge within neglected and comparison populations.

Summary

The study adds to the growing literature examining specific parenting processes adversely affect the emerging social and emotional skills of young children. While much of what is known about emotion knowledge comes from relatively small middle class samples using a variety of assessment formats, data on minority as well as diverse samples is still sparse. Despite this, there is emerging consistency about neglected children's deficits in emotion knowledge after controlling for IQ. While abusive parenting alters the attention and discrimination of expressions, especially anger, punitiveness that did not meet CPS criteria appeared to be related to lower IQ and had differential effects on the children's speed of recognition of emotions when IQ was controlled.

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Table 1

Means and standard deviations of measures by neglect status

Status	Emotion knowledge ^a		Harsh-punitive parenting ^a		Nonviolent parenting ^a		IQ	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<i>No neglect</i>								
Raw score	9.19	3.27	22.63	13.29	17.25	5.14		
Standard Score	0.21	0.97	0.1	1.12	0.17	0.95	95.04	7.05
<i>Neglect</i>								
Raw score	5.27	2.01	21.24	11.42	17.00	4.46		
Standard score	-0.65	0.67	-0.01	0.97	0.13	0.82	91.75	7.53

^aThe IQ covariate in the models was evaluated at 93.86. Standard Scores for all measures except IQ are z-scores

Table 2 Correlations between the variables of interest and emotion knowledge ($N = 42$)

Measures	Emotion knowledge	Extent neglect	CTS-PC harsh punishment	CTS-PC nonviolent discipline
Extent neglect	-.45**			
CTS-PC Harsh	-.12	-.02		
CTS-PC nonviolent	-.05	-.12	.59**	
IQ	.33*	-.01	-.12	-.39**

**
 $p < .01$

Table 3

Beta weights from a stepwise linear regression with backward removal predicting emotion knowledge from demographic measures and IQ

Variables entered	Model 1	Model 2	Model 3	Model 4	Model 5
Gender	-.08	Removed	–	–	–
IQ	.23	.24	.25	.27	.33*
Mother's education	.21	.23	.21	.25	Removed
Receive public assist	-.16	-.16	-.09	Removed	–
Mother employed	.12	.13	Removed	–	–

β weights are standardized

* $p < .05$

Table 4

Summary of a hierarchical regression model of emotion knowledge predicted by IQ, neglect, and parenting

Stage	Variable entered	Entry β	Final β	ΔR^2
1	IQ	.33*	.34*	.11*
2	Neglect	-.35*	-.34*	.12*
3	Harsh discipline	-.05	-.18	.00
4	Nonviolent discipline	.23	.23	.03
	Total model R^2			.26*

 β eights are standardized*
 $p < .05$

Table 5

Beta weights from a stepwise linear regression with backward removal predicting recognition latency from nonviolent parenting and harsh parenting in the comparison group

Variables entered	Model 1	Model 2
Nonviolent parenting	-.28	Removed
Harsh parenting	.55*	.24*
Total model R^2	.20	.15

β weights are standardized

*
 $p < .05$