The Pragmatic Language Skills of Severely Neglected 42-Month-Old Children: Results of the ELLAN Study.

Mélissa Di Sante a,b, Audette Sylvestre a,b, Caroline Bouchard c, Jean Leblond b

a: Faculty of Medicine, Laval University, Quebec (Quebec), Canada

b: Center for Interdisciplinary Research in Rehabilitation and Social Integration (CIRRIS), Quebec (Quebec), Canada

c: Faculty of Educational Sciences, Laval University, Quebec (Quebec), Canada

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PRAGMATIC LANGUAGE SKILLS OF NEGLECTED CHILDREN

Abstract

The goals of this study were twofold: 1) to compare the pragmatic language skills (i.e., social communication skills) of 42-month-old neglected children with those of same-aged non-neglected children and 2) to measure the prevalence of pragmatic difficulties among the neglected children. The study sample was composed of 45 neglected and 95 non-neglected 42-month-old French-speaking children. The Language Use Inventory: French (LUI-French) was completed with all parents. This measure, comprised of 159 scored items divided into 10 subscales, was used to assess the children’s pragmatic skills. The 10th percentile on the LUI-French (95% confidence interval) was used to identify children with pragmatic difficulties. The neglected children had lower scores than the non-neglected children on all 10 dimensions of pragmatics evaluated (p < .01), as well as lower LUI-French Total Scores (p < .001). The effect sizes of these differences varied between 0.84 and 2.78. Forty-four percent (44.4%) of the neglected children presented significant pragmatic difficulties compared to 4.2% of their non-neglected peers (p < .001). It can be concluded that exposure to neglect significantly compromises children’s pragmatic skills. These results support the need for interventions geared towards neglected children and their families to support the early development of their pragmatic skills.
Parental neglect is defined as a parent's inability to adequately meet the basic health, physical, or educational needs of their child (DePanfilis, 2006; Quebec Association of Youth Centres, 2010). It is the most commonly reported form of abuse towards children under five years of age in all Western countries (Clément, Bérubé, & Chamberland, 2016; Quebec Association of Youth Centres, 2016). In 2016, in Quebec, 10.4 out of every 1000 children under the age of five—approximately 1% of children in this age group—were under the care of youth protection services due to neglect or a serious risk of neglect (Quebec Association of Youth Centres, 2016; Statistics Canada, 2016). Since neglect is difficult to detect, it is likely that this figure, while high, underestimates the magnitude of the phenomenon (Blumenthal, 2015).

Being neglected at a young age can have significant and diverse repercussions on a child’s development (Clément et al., 2016; Hildyard & Wolfe, 2002). Of all aspects of development, language is the most likely to be disrupted among neglected children under 5 years of age (McDonald, Milne, Knight, & Webster, 2013). In this regard, Sylvestre and Mérette (2010) assessed the receptive and expressive language skills of 68 neglected children aged 2 to 36 months, using the Infant-Toddler Language Scale (Rossetti, 1990), a criterion-referenced tool designed to evaluate the early communication skills of 0-36-month-old children. The children’s ability to react to, recognize and understand language (receptive skills) and to communicate verbally (expressive skills) were measured. It was found that more than one-third (35.3%) of neglected children aged 2 to 36 months presented significant language delays affecting both the receptive and expressive aspects of communication (Sylvestre & Mérette, 2010). This figure rose to 41.7% for neglected children aged 21 to 36 months (Sylvestre & Mérette, 2010). These rates are considerably higher than those for typically developing children aged 21 to 36 months, which
have been found to be between 2% and 19% (Dale, Price, Bishop, & Plomin, 2003; Reilly et al., 2010; Zubrick, Taylor, Rice, & Slegers, 2007).

A recent meta-analysis of 23 studies focusing on maltreated (neglected and/or physically abused) children also confirmed that neglected children under the age of 12 had lower skill levels than their non-neglected peers in terms of language comprehension and expression (Sylvestre, Bussières, & Bouchard, 2016). This meta-analysis also indicated that maltreated children exhibited difficulties with pragmatic skills, that is, the way they used language in a social and communicative context (Cocquyt, Mommaerts, Dewart, & Zink, 2015). In their discussion, the authors of this meta-analysis mentioned that greater difficulties with pragmatic skills were expected for neglected children compared to abused children (Sylvestre et al., 2016). This hypothesis was based on the idea that, since pragmatic skills refer to aspects of language that are primarily social, they are likely to be more responsive to the quantity and quality of parent-child interactions than other more structural aspects of language, such as form (syntax, speech sound development) or content (vocabulary) (Coster, Gersten, Beeghly, & Cicchetti, 1989; Sylvestre et al., 2016).

Indeed, as children are exposed to frequent and varied interactions with their parents, their understanding of the ways in which language can be used in social contexts grows, which in turn leads to an increase in their overall language use and conversational skills (pragmatic skills) (O’Neill, 2007). Since parental neglect is mainly characterized by a lack or disruption in the quantity and quality of interactions between a parent and child, growing up in such a context is a significant risk factor in the pragmatic development of neglected children. However, given the small number of studies focusing exclusively on neglected children (k=3), only one of which
specifically examines pragmatic skills, Sylvestre et al.’s meta-analysis (2016) could not capture these differences in the pragmatic skill levels of neglected children.

Although definitions of pragmatics vary, most refer to the ability to use language appropriately in social interactions and real communication contexts with others (Bates, 1976; Cocquyt et al., 2015; O’Neill, 2007; Owens, 2012). This language component goes beyond understanding and expressing the more formal aspects of language (i.e., basic word meanings in correct grammatical forms) (Cocquyt et al., 2015; Turkstra et al., 2017). Studies including an examination of the pragmatic skills of preschool-aged children typically focus on the children’s ability to use language for different purposes or communicative intentions (e.g., asking, arguing, suggesting); change or adapt their language register to the listener or context; and conversational skills (e.g., balanced turn-taking and showing interest in others during conversations) (Ciccia, 2011; O’Neill, 2007; Turkstra et al., 2017). Since the primary function of language is as a vehicle for social interaction, pragmatic skills are thought to provide the necessary basis for the development of other more structural aspects of language, such as morphology and syntax (Owens, 2012; Paul & Shiffer, 1991).

Despite the likelihood that pragmatic skills will be affected by early childhood neglect due to a lack of exposure to stimulating parent-child interactions, the level of development of these skills among neglected children has been considerably understudied. To our knowledge, only two studies have focused on the pragmatic skills of preschool-aged neglected children, even though this is a crucial period for the development of pragmatic skills. The first was a cross-sectional study conducted by Sylvestre, Payette and St-Cyr-Tribble (2002) measuring the prevalence of pragmatic difficulties among 32 neglected children aged 18 to 36 months. To this end, these authors used the “Language Use” subscale of the Infant-Toddler Language Scale
(Rossetti, 1990), including 26 items assessing early pragmatic behaviours such as communicative intentions (e.g., asking with gestures or words, protesting) and interactive behaviours (e.g., maintaining eye contact, initiating turn-taking), between the ages of 18 and 36 months. It was found that more than one third (34.4%) of neglected children presented such difficulties.

The second was a study by Coster, Gersten, Beeghly and Cicchetti (1989) assessing the pragmatic skills of 20 maltreated children, including neglected children, aged 30 to 33 months and 29 days. Children’s utterances produced in the context of play with their mother were analyzed to study two aspects of pragmatics, namely the production of 12 communication intentions (e.g., naming, asking for action, describing objects) and the ability to maintain conversations (i.e., the extent to which the children’s utterances were relevant to the ongoing dialogue). The results of this analysis indicated that maltreated children expressed fewer diverse communication intentions than their same-aged peers. In particular, they made fewer requests to their mothers, made fewer comments about the objects in their environment, talked less about their own activity and internal states, and made fewer references to people or events outside the immediate context of communication. Furthermore, the results of this study showed that, compared to the non-maltreated children, the maltreated children produced fewer utterances about a given subject and their comments were less directly related to those of their communication partner (Coster et al., 1989).

Both Sylvestre et al.’s (2002) and Coster et al.’s (1989) studies showed that the pragmatic skills of maltreated children, including neglected children, were below developmental expectations. However, these studies had two main limitations. First, only one of them focused exclusively on neglected children. By combining abused and neglected children in their sample,
Coster et al. (1989) could not isolate the specific effect of exposure to neglect on pragmatic development. Indeed, some researchers have theorized that, despite the negative nature of the parent-child interactions that occur during physical abuse (verbal clashes, arguments), these interactions might nevertheless provide opportunities to support language development, which is not the case for the chronic absence of parent-child interactions characterizing neglect (Culp et al., 1991). Consequently, there is a need for further studies focusing specifically on neglected children in order to fully understand the influence of neglect on pragmatic skills. Second, no study has determined the prevalence of pragmatic difficulties among neglected children beyond the age of 36 months. However, by the age of 42 months, most of the pragmatic skills needed to express a variety of communication intents have been mastered by typically developing children (Ninio, 1996). These early pragmatic skills form the basis upon which more complex aspects of pragmatics continue to develop well into adulthood. Presenting pragmatic difficulties beyond this age thus represents a risk factor with regard to later language development. To address these concerns, the goals of this study were twofold: 1) to compare the pragmatic language skills of 42-month-old neglected children with those of same-aged non-neglected children and 2) to measure the prevalence of pragmatic difficulties among the neglected children.

**Method**

This cross-sectional study is part of a longitudinal study on the language development of neglected French-speaking children aged 3 to 5 years (Early Longitudinal Language and Neglect (ELLAN) Study, Sylvestre, Bouchard, Pauzé, & Mérette, 2014-2019). The ELLAN study involves a group of neglected children recruited in four youth centres (YC), and a comparison group of non-neglected children recruited in childcare centres in the Quebec City and Montreal regions. Recruitment for this study started in October 2014. It was completed within 6 months.
for the comparison group, and extended to March 2016 for the group of neglected children. To be included in the ELLAN study, children had to be exactly 36 months old (more or less one week). They also had to be unilingual French speakers. Children were excluded from the study if parents reported exposure to languages other than French more than 10% of the time since birth. This threshold was established to avoid potential confounds due to varying levels of bilingualism or multilingualism, which would have made it impossible to isolate the effect of exposure to neglect on language development. Children presenting a diagnosis of a condition associated with language difficulties (e.g., hearing loss) were also excluded.

Additional inclusion criteria were applied to the group of neglected children. At the outset of the study, these children had to be under the care of youth protection services due to neglect or a serious risk of neglect. The mandate of these services is to assess children’s safety and vulnerability and ensure the protection and well-being of maltreated children. For children to be taken into care by youth protection services, their exposure to chronic (severe) neglect must have been confirmed by youth protection social workers. This criterion ensures that the sample of neglected children in the ELLAN study have all been exposed to chronic (severe) neglect at one time or another, which is the independent variable of interest in this longitudinal study. For the same reason, to be included in this study, neglected children who were placed in foster families (where they were no longer exposed to neglect) had to have lived with their biological family for at least one month after birth. At Time 1 of the ELLAN study, the study sample consisted of 58 neglected children and 99 non-neglected children. The data presented in the current cross-sectional study were collected six months later, when the children were 42 months old (Time 2). The current study was approved by the Research Ethics Committees of the Quebec and Montreal Youth Centres.
Participants

The sample for the current cross-sectional study consisted of 45 neglected children (25 boys, 20 girls) with a mean age of 42.35 months (Range = 40.87-43.33, SD = 0.46). The comparison group consisted of 95 children (45 boys, 50 girls), with a mean age of 42.07 months (Range = 41.06-43.20, SD = 0.28). Participants' socio-demographic characteristics were collected at Time 1 (Table 1). The low income cut-off was based on provincial data for the year during which the study began (Statistics Canada, 2016). The two groups did not differ with regard to the children’s sex, $\chi^2 (1, N = 140) = 0.82, p = 0.24$, but did differ with regard to age, $t(60) = 3.74, p < .001, d = 0.74$. However, this age difference, which only amounts to a number of days, is not considered large enough to influence the findings of this study. Within the current sample of 45 neglected children, 23 were living with their biological family and 22 were living with a foster family at the time of data collection.

<Insert Table 1>

The loss of 4 participants in the comparison group between Time 1 and Time 2 of the ELLAN study can be explained by prolonged family absences or technical problems with recording devices. As for the loss of 13 participants in the group of neglected children, 4 families voluntarily left the study between Time 1 and Time 2 and data collection was not possible with the remaining 9 families for reasons such as family moves, changes or interruptions in telecommunication services, or absences at previously-scheduled home visits, all of which are characteristic of the population under study (CLIPP, 2008). Participants who took part at Time 1 but not Time 2 did not differ significantly from the remaining participants at Time 2 with regard to most of the risk factors related to language development, namely, the children’s sex, $\chi^2 (1, N = 62) = .05, p = 0.82$, family structure, $\chi^2 (1, N = 62) = .15, p = 0.69$, and gross household
income, \( \chi^2 (1, N = 62) = .48, p = 0.49 \). However, they did differ with regard to the education level of the main responding parent, \( \chi^2 (1, N = 62) = 4.42, p = 0.04 \), with 88% of parents who did not take part at Time 2 not having completed secondary school, compared to 56% of the remaining participants at Time 2. This difference should be taken into account when interpreting the findings of the current study.

**Measures and procedures**

The *Language Use Inventory – French (LUI-French)* (Pesco & O'Neill, 2016), a parent questionnaire aimed at measuring the pragmatic skills of French-speaking children aged 18 to 47 months, was used in this study. To avoid issues related to possible difficulties with literacy among parents, the *LUI-French* was administered in a face-to-face interview with parents during home visits.

The *LUI-French* is comprised of 177 items distributed across 14 subscales that proceed chronologically from asking about the child’s gestures to early words, and then to longer sentences. Ten of these subscales (comprising 159 of the 177 items) are used to calculate the *LUI-French* Total Score. These are: (C) the types of words used by the child, (D) the child's requests for help, (F) how the child uses words to get others to notice something, (G) the child’s questions and comments about things, (H) the child’s questions and comments about him/herself or other people, (I) the child’s use of words in activities with others, (J) teasing and the child’s sense of humour, (K) the child's interest in words and language, (M) how the child adapts his/her conversation to other people, and (N) how the child builds longer sentences and stories. The four remaining subscales (A, B, E and L) ask about gestures and the child’s interests, and are meant to supplement the *LUI-French* Total Score (Pesco & O'Neill, 2016). Within these ten subscales, parents are asked to answer 148 yes/no questions and 11 questions assessing the frequency of
behaviours on a four-point scale (never, rarely, sometimes, often). A score of 1 is assigned to the answers "yes," "sometimes," and "often," while a score of 0 is assigned to the answers "no," "never," and "rarely." Norms for interpreting the LUI Total Score are available for the original English version of this instrument (O'Neill, 2007, 2009). Norms are not yet available for the LUI-French, which is why a comparison group was included in this study.

The original English version of the Language Use Inventory shows excellent levels of sensitivity (81%) and specificity (93%) (Pesco & O'Neill, 2012), suggesting that this tool can be used as a reliable indicator of later language outcomes among children. As for the LUI-French, the psychometric qualities reported thus far indicate adequate to excellent internal consistency and reliability for the items comprising the 10 subscales (Cronbach's alphas between .73 and .99) (Pesco & O'Neill, 2016). A factor analysis also confirmed the factor structure of the 10 subscales of the LUI-French (Pesco & O'Neill, 2016).

The data for the current study were collected by two research assistants during a two-hour home visit. One of the assistants interviewed the parent, completing the LUI-French along with other questionnaires, while the other carried out language tests with the child.

**Data Analysis**

The data were analyzed using IBM SPSS Statistics software (version 25.0). Since the LUI-French Total Scores of the children in the two groups showed non-identical distributions, non-parametric Mann-Whitney U tests were conducted for intergroup comparisons. Glass's delta (Δ) was used to estimate effect sizes. This measure of effect size uses the standard deviation of the comparison group as a denominator. A Glass’s delta between 0.5 and 1 indicates moderate intergroup differences, while a value greater than 1 reveals large differences (Glass, 1981).
Based on recommendations for studying typical language development, the 10th percentile was used as a threshold to calculate the prevalence of pragmatic difficulties (Tomblin, 2000). Although general guidelines for interpreting the *LUI-French* Total Score are available online (Pesco & O’Neill, 2018), to date, no extensive normative data are available for 42-month-old French-speaking children. The 10th percentile of the *LUI-French* Total Score was thus calculated by using the distribution of scores obtained by the typically developing 42-month-old children in the comparison group. Based on a bootstrapping re-sampling method, the lower and upper limits of the 95% confidence interval (CI) of the 10th percentile threshold were also calculated in order to avoid overestimating the proportion of children presenting pragmatic difficulties. This led to the creation of three subgroups.

The first subgroup included children presenting pragmatic difficulties (i.e., those whose *LUI-French* Total Scores were below the lower limit of the 95% CI). The proportion of neglected children included in this subgroup was used to report the prevalence of pragmatic difficulties within this population. The second subgroup included children presenting typical pragmatic development (i.e., those whose *LUI-French* Total Scores were above the upper limit of the 95% CI). The third subgroup included children whose *LUI-French* Total Scores were between the lower and upper limits of the 95% CI inclusively (area of uncertainty). It is impossible to say with certainty whether these children presented typical pragmatic development or pragmatic difficulties. Lastly, chi-square tests were conducted to compare the proportions of neglected and non-neglected children in each of the three subgroups.

**Results**

Table 2 presents the mean scores for the neglected and non-neglected children on the 10 subscales of pragmatic skills assessed by the *LUI-French* as well as the mean *LUI-French* Total
Score for each group. The results of the non-parametric Mann-Whitney U tests comparing the mean ranks of the neglected children with those of the non-neglected children are also presented. As can be seen, the neglected children obtained significantly lower scores than the non-neglected children for all ten subscales of the *LUI-French* as well as lower *LUI-French* Total Scores. The effect sizes (Glass’s Δ) were greater than 1 for all subscales, except subscale J (teasing and child’s sense of humour), for which it was 0.84. The effect size of the intergroup differences in the *LUI-French* Total Score was 2.43.

<Insert Table 2>

Table 3 shows how the neglected and non-neglected children were distributed among the three pragmatic skill level subgroups. The *LUI-French* Total Score corresponding to the 10th percentile was calculated at 129.8, with the 95% confidence interval ranging from 119.00 to 140.00. The proportions of children presenting pragmatic difficulties, that is, 44.4% of neglected children and 4.2% of non-neglected children, differed significantly, $X^2 (1, N = 140) = 34.80, p < .001$. The proportions of children presenting typical pragmatic development, that is, 31.1% of neglected children and 80.0% of non-neglected children, also differed significantly, $X^2 (1, N = 140) = 31.79, p < .001$. However, the proportions of neglected and non-neglected children in the area of uncertainty did not differ significantly, $X^2 (1, N = 140) = 1.51, p = .219$.

Additional analyses were conducted to determine whether any of the sociodemographic variables presented in Table 1 were associated with these results. No associations were found between the presence of pragmatic difficulties among neglected children and family structure, $X^2 (1, N = 45) = .004, p = 0.947$, education level of the responding parental figure, $X^2 (1, N = 45) = 1.97, p = 0.161$, education level of the other parental figure, $X^2 (1, N = 45) = .004, p = 0.947$ or gross household income, $X^2 (1, N = 45) = 3.09, p = 0.079$. Nor were pragmatic difficulties
associated with the children’s family setting (i.e., living with their biological family or a foster family), $X^2 (1, N = 45) = 1.14, p = .27$. 

<Insert Table 3>

It is also worth mentioning that the *LUI-French* Total Scores obtained by the children in the comparison group used in this study ($M = 140.51$, $SD = 16.85$) were comparable to those of the 35 French-Canadian children aged 42 months who participated in the validation study of the *LUI-French* ($M = 144.59$, $SD = 12.03$) (Pesco & O’Neill, 2016). This suggests that the current comparison sample may be representative of the population of 42-month-old French-Canadian children with typical language development. First, these data support the validity of the intergroup comparisons conducted in this study. Second, they corroborate our use of the scores of children in the comparison group to estimate the value of the 10th percentile of the *LUI-French*, and its CI.

**Discussion**

The goals of this study were twofold: 1) to compare the pragmatic language skills of 42-month-old neglected children with those of same-aged non-neglected children and 2) to measure the prevalence of pragmatic difficulties among the neglected children. The results confirm that children who have been exposed to neglect are significantly more likely to experience pragmatic difficulties at 42 months of age than non-neglected children. They reveal significant differences between the pragmatic skill levels of the neglected and non-neglected children, as shown by their *LUI-French* Total Scores (overall effect size of 2.43) as well as their scores for each of the 10 subscales of pragmatic skills (effect sizes of between 0.84 and 2.78). Furthermore, some neglected children scored at the extreme lower end of the possible range of scores on almost all of the ten subscales, which was not the case for the comparison group. These
findings point to the important difficulties presented by neglected children with regard to the overall pragmatic skills expected in early childhood, rather than specific aspects of pragmatics. The lower ranges of scores obtained by the neglected children on all the chronological subscales as well as the large effect sizes for all the subscales also suggest that the neglected children presented significant difficulties with both the simpler dimensions of pragmatic development (e.g., requesting help) and the more complex ones (e.g., adapting their conversations). These results converge with those of previous studies bringing out the pragmatic difficulties presented by young neglected children (Sylvestre et al., 2002), such as limited communicative intents and reduced conversational skills (Coster et al., 1989).

The results of this study also show that nearly half of the 42-month-old neglected children (44.4%) presented pragmatic difficulties. This is an alarming proportion, representing more than 10 times that found for the comparison group in the current study. Furthermore, the neglected children who presented pragmatic difficulties and those presenting typically developing pragmatic skills did not significantly differ in terms of levels of parental education, gross household income or family structure. Taken together, these results confirm the harmful consequences of exposure to neglect on the development of children’s pragmatic skills.

The prevalence of pragmatic difficulties as measured in our study at 42 months of age is greater than the rates previously established using a similar sample of French-speaking neglected children aged between 9 and 36 months, that is, 17.4% for neglected children aged 9 to 18 months (n = 23), and 34.4% for those aged 18 to 36 months (n = 32) (Sylvestre et al., 2002). The data from the present study, combined with those reported by Sylvestre et al. (2002), suggest that pragmatic difficulties identified at a young age may persist over time. The higher frequency of pragmatic difficulties found in this study may be attributable to the measuring instrument used
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(i.e., the *LUI*-French). The *LUI*-French includes a greater number of items than the *ITLS*, used in Sylvestre et al.’s study (2002), and thus allows for a better assessment of the diversity and breadth of functions for which children use language on a daily basis. Whereas the *ITLS* is a criterion-referenced tool comprised of items pertaining to different language components, including pragmatic skills, the 159 items of the *LUI*-French were developed to measure pragmatic skills specifically. Therefore, the *LUI*-French may be a more sensitive tool for identifying the presence of difficulties with this language component.

This study reveals the unequivocal presence of early pragmatic difficulties manifested by children who have been exposed to chronic neglect. To understand why so many neglected children present these difficulties, it is important to consider the relational context in which these children grow up. It must be kept in mind that a disruption in the interactions between parents and their children is at the heart of what constitutes child neglect (CLIPP, 2008). Typically, neglectful parents show little or no concern for their children's emotional and communicative signals, which are thus often ignored (DePanfilis, 2006; Edwards, Shipman, & Brown, 2005). These parents generally adopt a more negative and less accepting attitude toward their children than non-neglectful parents (Burgess & Conger, 1978; Crittenden, 1981). Yet, it is precisely the quality of the relational context in which the communicative exchanges between parents and children take place that normally fosters language development (Hirsh-Pasek et al., 2015; Roberts & Kaiser, 2011; Rowe, 2017; Wasik & Hindman, 2015).

It is also plausible that relational deficiencies, which are typical of parental neglect, specifically contribute to children’s pragmatic difficulties. In this regard, Coster et al. (1989) suggested that repeated exposure to negative communicative interactions between a parent and child in the context of neglect might discourage the child from using language to interact
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socially, particularly to express feelings, describe activities, or engage in long exchanges. Over the long term, this disengagement on the part of both the child and the parent could lead to a lack of exposure to communicative interactions, which could result in an inability to understand the cognitive, social, and linguistic aspects that language use relies on.

In addition to the relational shortcomings that compromise interactions between the parent and child, parental neglect can also alter the quality of language stimulation to which the child is exposed (Burgess & Conger, 1978; Wilson, Rack, Shi, & Norris, 2008). This may be due to the parent’s lack of knowledge on the typical developmental milestones of children at different ages (DePanfilis, 2006). These gaps in child development knowledge may lead to unrealistic expectations of the child's abilities and compromise the parent’s ability to adjust his/her stimulation to the child's developmental needs, including those related to language development (DePanfilis, 2006). A fine-tuning of the language stimulation provided to children is essential for the acquisition and further development of their pragmatic skills. Language development is a dynamic process, which unfolds in response to gradual changes in the characteristics of the language to which the child is directly exposed (Evans, 2001). All the behaviours characterizing parental neglect are likely to deprive children of the rich communicative contexts and language models that are essential to and support the acquisition and development of pragmatic skills.

Clinical and research perspectives

The findings of this study argue for early interventions aimed at supporting the development of pragmatic language skills among neglected children. The prevalence of pragmatic difficulties among neglected children at 42-months of age is of very high concern since, in addition to being central to language development as a whole, children's pragmatic skills also enable them to engage in positive interactions with their peers (Coplan & Weeks,
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2009; Gibson, Adams, Lockton, & Green, 2013). Early interventions related to this aspect of language are thus likely to have a decisive impact on a child’s early experiences of socialization.

Moreover, our findings highlight the importance of evaluations and interventions focusing on pragmatic skills, a component of language that is often neglected in favour of more structural aspects of language. This exclusion may be due to the difficulties inherent in evaluating and intervening in pragmatic skills in a clinical (e.g., non-ecological) context, since the very nature of these skills requires that they be evaluated in an environment reflecting the child’s natural communication contexts. The results of our study suggest that the LUI-French is sensitive to both pragmatic difficulties and typically developing pragmatic skills at 42-months of age. This study thus suggests that the LUI-French is a highly informative measure that can be used by clinicians and researchers to assess the pragmatic language skills of preschool-aged, French-speaking children. We also encourage the use of the English version of this tool both with similar and other populations of preschool-aged children in order to add to the growing body of evidence on the typical and atypical development of pragmatic skills during this developmental period.

Although the data emerging from this study confirm the negative effects of child neglect on the pragmatic skills of neglected children, it should also be recognized that more than one-third of these children achieved scores reflecting a level of pragmatic development similar to that of their non-neglected peers. The presence of specific protective factors, such as living in a supportive and stimulating foster family, attending a high-quality childcare setting, or the presence of a social support network for the family, might be associated with better pragmatic skills among neglected children. The contribution of these factors should be studied in order to
shed much needed light on the role played by the environment in the development of neglected children.

Finally, this study focused on the pragmatic language skills of neglected children in isolation from their skills related to other aspects of language (e.g., morphosyntactic, phonological or lexical skills). However, these different components of language all emerge and develop in response to the reciprocal influences between them over time (Tomasello, 2003). To better understand the effects of exposure to neglect on the language development of children, it is thus essential to consider children’s pragmatic skills in relation to other language components.

**Strengths and limitations**

This study has some limitations. First, although parent report is considered to be a valid and important method of assessing language development (Law & Roy, 2008), some studies have raised concerns about its use with parents from disadvantaged socioeconomic backgrounds, a situation that applies to many neglectful families (Pan, Rowe, Spier, & Tamis-Lemonda, 2004). The findings of these studies have generally been inconclusive, and the relationship between socioeconomic background and the parental assessment of children’s language skills is not straightforward (Law & Roy, 2008). The measure used in our study addresses many of these concerns. First, it reports on emergent pragmatic behaviours that are currently observable (rather than retrospective). Pragmatic skills are also identified by recognition rather than recall, and the expected parental responses are almost exclusively binary (yes/no). These characteristics maximize the validity of parental responses (Dale, 1991; Dale, Bates, Reznick, & Moriset, 1989). The completion of the *LUI-French* during face-to-face interviews with the parents also allowed for clarifications and added examples to help support the parents’ comprehension of the assessment items, further limiting possible differences in parental responses between the two
groups. It is also worth mentioning that additional analyses showed significant positive correlations between neglected children’s total scores on the *LUI:French* and other language measures administered by a research assistant during the same home assessment, such as receptive vocabulary, $r(36) = .57, p < .001$ and expressive vocabulary $r(32) = .48, p = .004$, results which add merit to the use of the *LUI:French* in this population.

Moreover, the findings of this study can only be generalized to similar populations of severely neglected children and typically developing children aged 42 months. Lastly, the cross-sectional design of this study does not make it possible to draw conclusions concerning the developmental trajectory of the pragmatic skills of neglected children during early childhood. Longitudinal studies on the pragmatic skills of neglected children aged 18 to 47 months are thus recommended to determine whether the pragmatic difficulties presented by these children increase over time, and whether they persist.

This study also presents important strengths worth mentioning, including the relatively large sample size of neglected children, especially considering the challenges inherent in recruiting participants from this subgroup of the population (e.g., generally disorganized day-to-day life, frequent family moves) (Montreal Youth Centre - University Institute, 2011). Moreover, the sample consists only of children whose exposure to neglect was confirmed by social workers and who were under the care of child protection services. Such a sample composed only of neglected children, rather than children exposed to different types of maltreatment, as is the case in most studies, provides more specific insight on the pragmatic development of neglected children.

Furthermore, the procedure used to calculate the prevalence of pragmatic difficulties among the neglected children ensured a precise measure. Using the 10th percentile and 95% CI
to measure the children’s pragmatic skill levels allowed for a more accurate identification of children with pragmatic difficulties. Indeed, including only children whose scores were below the lower limit of the error margin of the 10th percentile ensured that the resulting proportion was not overestimated.

Conclusion

This study shows that early exposure to neglect is a serious risk factor in the development of children’s pragmatic language skills. Nearly half (44.4%) of the neglected children presented pragmatic difficulties at 42 months of age, a prevalence that was ten times higher than that for the non-neglected children. Our results also show that the effect of exposure to neglect on pragmatic language development goes beyond the influence of sociodemographic risk factors such as income and parental education level. Important delays with regard to developmental expectations were observed for all the measured dimensions of pragmatics. Professionals involved with neglected children should be made aware of these difficulties. Interventions should be implemented at an early age to support the development of pragmatic skills among this subgroup of particularly vulnerable children. In light of emergent evidence suggesting that lower pragmatic skills may be related to emotional and behavioural problems, as well as difficulty forming relationships with others later in life (Ketelaars, Cuperus, Jansonius, & Verhoeven, 2010; Whitehouse, Watt, Line, & Bishop, 2009), such interventions could minimize the effects of pragmatic difficulties on the well-being and development of neglected children.

Declaration of conflicting interests

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.
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References


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Table 1

*Participant Characteristics (N = 140)*

<table>
<thead>
<tr>
<th>Variables (risk factors)</th>
<th>Neglected children&lt;sup&gt;a&lt;/sup&gt; (n = 45)</th>
<th>Non-neglected children (n = 95)</th>
<th>χ²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (male)</td>
<td>25 (55.6)</td>
<td>45 (47.4)</td>
<td>0.82</td>
<td>.24</td>
</tr>
<tr>
<td>Family structure (single parent)</td>
<td>20 (44.4)</td>
<td>6 (6.3)</td>
<td>29.36</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Education level of the responding parental figure (≤ secondary school)</td>
<td>24 (53.3)</td>
<td>5 (5.3)</td>
<td>42.96</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Education level of the other parental figure (≤ secondary school)</td>
<td>17 (60.7)&lt;sup&gt;b&lt;/sup&gt; (n = 28)</td>
<td>13 (14.4) (n = 90)</td>
<td>24.11</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Gross annual household income (≤ low income cut-off&lt;sup&gt;c&lt;/sup&gt;)</td>
<td>21 (55.3) (n = 38)</td>
<td>3 (3.3) (n = 91)</td>
<td>47.80</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

*Note.* <sup>a</sup> This group includes all children who had been exposed to neglect, including those currently living with their biological families (n=23) and those living with foster families (n=22) <sup>b</sup> Adjusted totals account for missing data. <sup>c</sup> Source: Statistics Canada (2016).
### Table 2

*Mean Scores of Neglected and Non-neglected Children on the LUI-French and Results of Mann-Whitney U Mean Rank Comparisons.*

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Neglected children</th>
<th>Non-neglected children</th>
<th>U</th>
<th>p</th>
<th>Glass’s Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 45</td>
<td>n = 95</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C- words the child uses (/23)</td>
<td>20.78 3.64 7-23</td>
<td>22.75 0.97 15-23</td>
<td>1129.0 &lt;.001</td>
<td>2.04</td>
<td></td>
</tr>
<tr>
<td>D- requests for help (/7)</td>
<td>6.18 1.63 1-7</td>
<td>6.85 0.55 3-7</td>
<td>1696.5 &lt;.01</td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td>F- child’s use of words to get you to notice something (/6)</td>
<td>5.02 1.42 0-6</td>
<td>5.65 0.48 5-6</td>
<td>1608.0 &lt;.01</td>
<td>1.32</td>
<td></td>
</tr>
<tr>
<td>G- questions/comments about things (/9)</td>
<td>7.58 2.17 0-9</td>
<td>8.87 0.47 6-9</td>
<td>1243.0 &lt;.001</td>
<td>2.78</td>
<td></td>
</tr>
<tr>
<td>H- questions/comments about him/herself or other people (/36)</td>
<td>27.96 10.06 1-36</td>
<td>34.77 2.50 21-36</td>
<td>935.0 &lt;.001</td>
<td>2.72</td>
<td></td>
</tr>
<tr>
<td>I- use of words in activities with others (/14)</td>
<td>10.58 3.41 1-14</td>
<td>13.26 1.25 7-14</td>
<td>925.5 &lt;.001</td>
<td>2.15</td>
<td></td>
</tr>
<tr>
<td>J- teasing and sense of humour (/5)</td>
<td>3.07 1.42 0-5</td>
<td>4.09 1.22 0-5</td>
<td>1187.5 &lt;.001</td>
<td>0.84</td>
<td></td>
</tr>
<tr>
<td>K- interest in words and language (/12)</td>
<td>7.98 2.82 1-12</td>
<td>10.49 1.42 5-12</td>
<td>905.0 &lt;.001</td>
<td>1.77</td>
<td></td>
</tr>
<tr>
<td>M- how the child adapts his/her conversation to other people (/15)</td>
<td>10.24 4.55 0-15</td>
<td>13.07 2.23 3-15</td>
<td>1338.5 &lt;.001</td>
<td>1.27</td>
<td></td>
</tr>
<tr>
<td>N- how the child builds longer sentences and stories (/32)</td>
<td>16.04 9.43 0-32</td>
<td>24.87 4.23 7-32</td>
<td>920.0 &lt;.001</td>
<td>2.09</td>
<td></td>
</tr>
<tr>
<td><em>LUI-French</em> Total Score (/159)</td>
<td>115.42 37.04 16-159</td>
<td>144.69 12.03 83-159</td>
<td>941.0 &lt;.001</td>
<td>2.43</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3

*Distribution of Neglected and Non-neglected Children Among the 3 Pragmatic Skill Level Subgroups.*

<table>
<thead>
<tr>
<th>Level of pragmatic skills</th>
<th>Neglected children</th>
<th>Non-neglected children</th>
<th>$\chi^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 45</td>
<td>n = 95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pragmatic difficulties</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$LUI$-$French$ Total Score $&lt;$ 119</td>
<td>20  44.4</td>
<td>4  4.2</td>
<td>34.80</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Typical pragmatic development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$LUI$-$French$ Total Score $&gt;$ 140</td>
<td>14  31.1</td>
<td>76  80.0</td>
<td>31.79</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Area of uncertainty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$LUI$-$French$ Total Score [119-140]</td>
<td>11  24.4</td>
<td>15  15.8</td>
<td>1.51</td>
<td>.22</td>
</tr>
</tbody>
</table>

*Note.* The subgroups are based on the lower and upper limits of the 10th percentile (129.8) and 95% CI [119.0, 140.0] for the $LUI$-$French$ Total Scores.