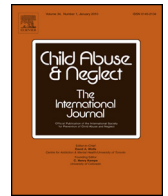Contents lists available at ScienceDirect

Child Abuse & Neglect

Full Length Article

Sexual abuse and preschoolers: Forensic details in regard of question types

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Karine Gagnon, Mireille Cyr*

Department of Psychology, University of Montreal, Canada

A R T I C L E   I N F O

A B S T R A C T

The present study looks into the association between the types of questions used by interviewers and the number of details obtained among preschoolers during an investigative interview. An innovative aspect of this study concerns the analysis of question subtypes (eg. open-ended directive and closed-ended). Analysis of variance were carried out on 55 NICHD interview protocols conducted among children aged three to five years old who disclosed an episode of sexual abuse. Findings reveal that interviewers' style is in accordance with best practices in conducting investigative interviews with children allegedly victims of sexual abuse. As expected, there are more details in answers: 1) provided by older children compared to younger counterparts; 2) following invitations compared to all other question types. However, the analysis of question subtypes has shown that answers given to an open-ended question using cues (cued invitations or directive open-ended) obtained more details concerning the incident compared to the absence of cues (general invitations). These findings support the fact that children as young as three years old are able to produce informative responses when questioned appropriately about the CSA incident and propose reconsidering the types of question that should mainly be used with them. Findings suggest that the use of open-ended questions, using a cue previously mentioned in the testimony of the child, helps provide a detailed account during an investigative interview conducted among preschoolers allegedly victims of sexual abuse.

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1. Introduction

1.1. The challenge of interviewing young children

Since the child is generally the only witness during an episode of sexual abuse, the investigative interview carried out with the child is often the only reliable way to collect information in order to determine if the allegations are deemed well-founded. In this context, the accuracy and the number of details obtained from the child's recollection of events are crucial. Many controlled and field studies have examined these variables (Brown et al., 2013; Goodman & Melinder, 2007; Saywitz, Lyon, & Goodman, 2011) and there is an existing consensus in the literature concerning the best practices in investigative interviews designed for alleged victims of child sexual abuse (CSA) (Lamb, Hershkowitz, Orbach, & Esplin, 2008; Lyon, 2010; Saywitz & Camparo, 2009; Thakkar, Jaffe, & Vander Linden, 2015). Namely, open-ended questions have shown to

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* Corresponding author at: Department of Psychology, University of Montreal, Pavillon Marie-Victorin, C. P. 6128, succursale Centre-ville, Montréal, Québec, H3C 3J7, Canada.
E-mail address: mireille.cyr@umontreal.ca (M. Cyr).

yield more detailed, accurate and coherent reports compared to close-ended and suggestive questions among preschool and school-aged children, even though young children's performance on these three variables is generally poorer than older counterparts (Feltis, Powell, Snow, & Hughes-Scholes, 2010; Hershkowitz, Lamb, Orbach, Katz, & Horowitz, 2012; Lamb et al., 2003; Orbach et al., 2000; Lyon, 2014; Snow, Powell, & Murfett, 2009). However, it seems difficult for the interviewers to maintain best practices especially with young children, as observed in two recent Canadian studies who reported the overuse of closed-ended questions and underuse of open-ended questions (Luther, Snook, Barron, & Lamb, 2014; Roberts & Cameron, 2015). Other studies also observed that the use of directive questions is clearly superior to more open invitations (Andrews, Lamb, & Lyon, 2015; Yi, Lamb, & Jo, 2014). Closed-ended questions limit the spontaneous recollection of events from the child, as well as decrease the quantity of information reported (Lyon, 2014; Snow et al., 2009). In addition, this type of question increases children's suggestibility, making them more likely to provide an answer even when they do not know the answer or understand the question (Peterson, Dowden, & Tobin, 1999; Walker, 2013; Waterman, Blades, & Spencer, 2000). Furthermore, interviewers may present difficulties in adapting to the child's developmental state (Marchant, 2013; Olafson & Kenniston, 2008; Walker, 2013). They often use multiple choice or suggestive questions when interviewing preschoolers and they do not use simple language as recommended (i.e. questions may be too long and complicated, ambiguous references are made about people, etc.) (Korkman, Santtila, Drzewiecki, & Kenneth Sandnabba, 2008; Powell & Snow, 2007). The present study aims to verify the types of questions that are mainly used by interviewers when they are conducting investigative interviews in the context of sexual abuse among preschoolers, and identify the questions that are most likely to produce a quality answer, as measured by a higher number of details obtained.

1.2. **Preschoolers**' ability to testify

Many studies have revealed that preschoolers are less likely to disclose an episode of abuse and when they do, the number of details obtained from the child is lower and the overall report is less coherent and complex than the report provided by older counterparts (Hershkowitz, Horowitz, & Lamb, 2005; Lamb et al., 2003, 2008; Orbach & Lamb, 2007). Yet, when preschoolers disclose an episode during an investigative interview, more than 80% of them do so through open-ended questions (Lamb et al., 2008). Research has shown that CSA as young as three years old are able to provide a short and accurate testimony of the abuse they have experienced (Hershkowitz et al., 2012; Lamb et al., 2003, 2008; Marchant, 2013; Walker, 2013). Among children aged three to five years old, open-ended and directive questions (particularly: who, what, where) should be favoured over "yes/no" questions, since they yield more accurate answers (Peterson et al., 1999; Walker, 2013; Waterman et al., 2000). However, in response to open-ended questions, very young children generally provide a shorter report, thereby increasing the challenges associated with the investigation (Marchant, 2013).

1.3. Types of questions and details provided

Researchers have created different categories of questions used by interviewers to look at the associations between the number of details provided, the type of questions used and the age of children. Consequently, definitions of question types vary among authors. However, the following broad definitions encompass the differences between articles cited in this section. Open-ended questions (e.g., invitations and open directive questions) allow the child to provide an elaborate and spontaneous response using free recall memory, while closed-ended questions (e.g., closed directive and option-posing questions) aim to find specific information provided with a few words only and using recognition memory. Suggestive questions are classified separately because they undermine the accuracy of the response, so they need to be avoided. See further definitions and examples in Table 1.

1.3.1. Open-ended questions: invitations. A few studies conducted among CSA with samples of school and preschool aged children indicate that the production of details increases with age for all types of questions, but open-ended questions, such as invitations, generally help provide better reports of events (Feltis et al., 2010; Hershkowitz et al., 2012; Lamb et al., 2003; Snow et al., 2009). This type of questions generated almost half of details in a sample of CSA aged four to eight years old (Lamb et al., 2003). At four years old, the use of invitations seems preferable to other types of questions, since they provide a greater amount of information (Lamb et al., 2003). This result was replicated by Hershkowitz et al. (2012) among a sample of CSA closer to the preschool age (three to six-year-old). The effectiveness of invitations was however age differentiated: invitations were superior to any other type of questions only for children aged five and six. Authors suggest that there may be a developmental threshold starting at five years old in order to obtain a detailed description of events following invitations, which contradicts in part Lamb et al.'s (2003) findings that pointed to this association in children as young as four years old.

1.3.2. Differences between types of invitations. There are three subtypes of open-ended invitation questions: general invitations, cued invitations and time segmentation invitations (see Table 1). Lamb et al. (2003) have looked at the associations between the subtypes of invitations and the number of details obtained, namely as it concerns the testimony of preschoolers who have been victims of sexual abuse. Results indicate that children aged four years old provided fewer details than older counterparts following general invitations, and the number of details obtained through cued invitations increased with age.

Table 1
Definitions and examples of types and subtypes of questions.

Questions Types Subtypes	Definitions	Examples
Invitations	Focus on the free recall of the event	"Tell me everything that happened from the beginning until the end"
General invitation	The most open question, do not guide the report of events	"Tell me more about that" "Then what happened?"
Cued invitation	Aim to provide further information previously mentioned by the child by using a clue	"You mentioned his hand on your belly, tell me more about that"
Time segmentationinvitation	Isolate a specific time frame as reported by the child in order to further explore that moment	"Tell me everything that happens from the time he enters your room until he touches you"
Directive	Try to find more precise information on content previously mentioned by the child	"Who, what, when, where, how (and using a clue from the child)"
Closed-ended directive	Aim to provide short answers on a topic or a specific clue, by using "Wh/how" questions	"You mentioned you were at home. Where exactly were you?" "What was the color of your pyjamas?"
Open-ended directive	Allow the child to elaborate freely, by using "Wh/how" questions	"How did he touch you?" "What are you doing with your hands?"
Option-posing	These are multiple choice or yes/no questions that seek information not mentioned, without waiting for a specific answer from the child	"Did it happen during the morning, afternoon, evening or night?" "Was he tall?"
Suggestive	These questions force the response in a specific direction, use false or unknown information, repeat more than twice the same question	"He forced you, isn't he?" "Tell me everything that happens when you're on the bed" (the child never said he/she was there before in the interview)

As for time segmentation invitations, while they help to better organize the sequence of events for children as young as four years old, they are clearly more efficient at eight years old (Lamb et al., 2003).

1.3.3. Invitation or directive question?. Directive questions guide the child's answers by asking him/her to clarify information through questions such as "who, what, when, where, how" (Lamb et al., 2003). Since the structure of directive questions may vary between closed-ended questions or open-ended questions (see Table 1), its classification in one of these categories remains ambiguous (Lyon, 2014). Recent findings from Andrews, Ahern, Stolzenberg and, Lyon propose a similar analysis about the classification of invitations and directive questions. The productivity of different types of directive questions ("Wh" prompts) has been compared. The most open-ended directive questions yielded the greatest number of details from school-aged children in contrast with all other kinds of directive questions. This finding can be attributed to the similarity between the requested information through the most open-ended directive question (e.g., what happened?) and the general invitation (e.g., tell me everything that happened from the beginning until the end). Hence, these findings highlight the fluctuation in the number of details produced in relation with directive question subtypes, as well as a similarity between directive questions that are very open and invitations. From a different perspective, when the number of details provided is looked at as a function of question type, directive questions come in second. While they produce fewer overall details than invitations, they still get more details than closed-ended yes/no or multiple-choice questions (Andrews, Ahern, Stolzenberg, & Lyon, 2016; Hershkowitz et al., 2012; Lamb et al., 2008).

In contrast, other studies reveal that directive questions are more effective in producing more details from young victims. Korkman et al.'s (2008) study, conducted among children aged three to eight years old, reported that facilitators and directive or suggestive questions produced more details than invitations or option-posing questions. The developmental hypothesis concerning the increase in the number of details provided as a function of age (pre-school or school age) has also been contradicted. Hershkowitz et al. (2012) observed an interaction whereby children aged three and four gave the same number of details following directive questions and invitations, while those aged five and six provided more details following invitations compared to all other types of questions, including directive questions. Since directive questions are more precise than invitations in terms of the specific information being sought, authors believe that this can explain why children aged three and four years old perform better, considering their level of cognitive development (Hershkowitz et al., 2012).

In sum, studies conducted up until now have examined the associations between the types of questions used by interviewers and the number of details provided by children, but none has looked into this association only among preschoolers (i.e. children aged three to five years old). Moreover, there seems to be a confusion regarding the type of question that produces more details among preschoolers. While invitations and directive questions may provide more details than closed-ended questions, their respective effectiveness has yet to be demonstrated. At last, cued invitations and directive questions may act similarly in helping young children to better answer questions. It is also possible that cued invitations may be more similar to

open-ended directive questions, but to date, no study has discriminated subtypes of open-ended and closed-ended directive questions among preschoolers who have been victims of sexual abuse.

1.4. Objective of the present study

The present study aims to analyze interviewers' behaviors in a real investigative context with CSA children aged three to five years old, and to examine the relations between the types of questions used and the number of details provided during the interviews. In order to achieve this, the number of details provided will be analyzed in terms of four types of questions used by interviewers (i.e. invitations, directive, option-posing and suggestive), three subtypes of invitations (general, cued, time segmentation) and two subtypes of directive questions (open-ended and closed-ended). Regarding types of questions, it is expected that: 1) there will be a greater number of details provided following invitations and directive questions compared to option-posing and suggestive questions; 2) children aged five will provide more details following every type and subtype of questions compared to younger counterparts; 3) an interaction effect will be obtained between age and question type: children aged three will provide more details following directive questions in contrast with invitations, while invitations will help children aged five to provide more details than directive questions. As for subtypes of questions, it is expected that the number of details provided, regardless of age: 1) will be inferior following closed-ended directive questions compared to open-ended questions; 2) will be the same following open-ended directive questions compared to general invitations or cued invitations.

2. Methodology

2.1. Participants and recruitment

In total, 55 participants aged three to five years old were selected from a sample of CSA who completed an investigative interview using the National Institute of Child Health and Human Development (NICHD) protocol and disclosed at least one episode of sexual abuse. The sample is made up of 65% girls and 35% boys, and the mean age is 4.2 years old ($SD = 0.8$). Fifty-three percent of alleged victims reported one episode, 43% reported more than one, and 4% did not provide enough details to conclude whether there were one or more episodes. The proportion of intrafamilial abuse (immediate family) was 44%, and the proportion of extrafamilial abuse (extended family, acquaintance or other) was 56%. The type of abuse behavior reported varied from exhibitionism ($n = 1$), touching on top of clothes ($n = 15$), touching under clothes ($n = 19$), oral sex or penetration ($n = 20$). Overall, 11% of children reported the presence of violence (were held, sequestered, or hit). The majority of perpetrators were males (89%), 9% were females, and one was not specified in the interview. The mean age for perpetrators was 32.5 years old ($SD = 15.4$).

2.2. Procedure

The NICHD investigative interviews were all conducted by trained police officers in a large city. At the time of recruitment, the alleged victims' parents signed a consent form authorizing the research team to have access to the interview recording. These interviews were transcribed and all the personal information was removed in order to ensure anonymity and confidentiality. Data analysis focused on the declarative part of the interview, i.e. the part where the investigator attempts to obtain information on the alleged CSA, thus excluding the first part of the interview that aims to establish ground rules and alliances. Coding was performed by graduate students who completed training on NICHD interview coding so they could: 1) identify the type of question used by interviewers; 2) identify the number of details reported by children. Inter-rater coding was carried out on 20% of interviews to ensure reliability. Intra-class correlations were 0.98 for the number of details and 0.99 for types of questions.

2.3. Measures

2.3.1. Interview coding. The coding grids used in the present study come from the French version of the NICHD scoring manual (Original version by Lamb et al., 1996; Orbach et al., 2000; French version by Cyr, Dion, Perreault, & Richard, 2002). These grids allowed the categorization of the types of questions asked by interviewers, as well as the number of details provided by children. Among the six categories combining interviewers' statements, two were excluded (facilitators and summaries), since their objectives were mainly to encourage the child to keep talking rather than to uncover specific information. The four remaining categories were (see Table 1): 1) invitations that aim to provide the free recall of the incident by the child (composed of three subtypes); 2) directive questions that seek more closely additional information on content that has been previously mentioned by the child (composed of two subtypes); 3) option-posing that center the child's attention on content he/she did not mention using multiple choice or yes/no questions, but without expecting a specific answer and 4) suggestive questions that guide the child's answers towards an expected answer or introduce information not already provided by children. The subtypes of invitations (general, cued, time segmentation) and the directive questions (open-ended and closed-ended) were also categorized (see Table 1). While each invitation subtype allows the child to come up with an answer using his/her free recall memory, they all operate differently. General invitations, the most open subtype,

Table 2
Means and Standard Deviations (in Parentheses) of the Use of Types and Subtypes of Questions Based on Children's Age Groups.

Questions	Age groups			
	3 ($n = 13$)	4 ($n = 18$)	5 ($n = 24$)	Total ($N = 55$)
Invitations	16.6 (7.0)	18.2 (7.2)	20.3 (14.5)	18.8 (10.9)
General	8.9 (3.0)	9.1 (3.7)	9.2 (6.8)	9.1 (5.1)
Cued	6.9 (4.5)	6.8 (4.1)	8.0 (6.4)	7.4 (5.5)
Time segmentation	0.8 (1.0)	2.3 (3.1)	3.1 (3.6)	2.3 (3.1)
Directive	19.9 (9.9)	22.5 (19.5)	22.9 (13.2)	22.0 (14.9)
Closed-ended	10.5 (7.8)	11.5 (13.6)	10.3 (7.0)	10.7 (9.7)
Open-ended	9.5 (5.9)	11.0 (8.2)	12.5 (9.2)	11.3 (8.1)
Option-posing	12.4 (7.2)	13.6 (8.3)	17.5 (9.3)	15.0 (8.7)
Suggestive	3.0 (2.5)	3.5 (3.4)	3.5 (3.1)	3.4 (3.0)
In total	61.9 (22.2)	65.3 (31.5)	75.7 (32.3)	69.0 (30.0)

encourage the child to further elaborate without guiding the answer; cued invitations aim to provide further information by using a clue previously mentioned by the child and time segmentation invitations aim to get more information from a specific portion of the event reported by the child. Directive questions also use cues previously mentioned by the child, but in a narrower way than cued invitations: closed-ended directive questions aim to provide short answers on a topic or a specific clue, while open-ended directive questions allow the child to elaborate freely on what is being sought. The number of details obtained through the child's answers was calculated in accordance to the guidelines provided in the coding grid. A detail was defined as a word or a group of words that identifies or describes people, objects, actions or events associated with a sexual abuse episode. It was counted only if it was new and if it allowed a better understanding of the event. Finally, data on the characteristics of abuse was also collected during the investigation (e.g., type of sexual abuse, duration, relationship with the perpetrator, etc.).

3. Results

3.1. Control variables and data transformation

Prior to conducting statistical analyses, the dependent variable was transformed to obtain the proportion of reported details for each type of questions, in order to control for the varying length and number of questions asked in every interview. The presence of covariables potentially associated with the amplitude of the association between independent and dependent variables was verified using correlational analyses. There were no significant correlations between any of the child variables (gender, particular difficulties, type of sexual abuse, number of sexual abuse, presence of violence), the perpetrator variables (age, gender, relationship with the victim), or any other variables (medical examination, if parents believe the child). The age of children was not taken into account in the analyses since the objective was to obtain specific data concerning the number of details provided by children in each of the three age groups. In statistical analyses, logarithmic transformations were performed on the dependent variables in order to normalize their distributions. For each repeated measure ANOVA, results of the Greenhouse-Geisser are reported as a correction for violation of sphericity as indicated by the Mauchly's test.

3.2. Interviewers' behaviour during an investigation

A first repeated measure ANOVA (Age x Questions) was conducted as a means to assess the types of questions (invitations, directive, option-posing, suggestive) that were more frequently used by interviewer depending on preschoolers' age (see Table 2). The age of children was not significantly related to a variation in the types of questions used $F(4.68, 121.56) = 0.44$, $p = 0.852$. Findings however reveal that the use of different types of questions significantly varies $F(2.34, 121.56) = 81.49$, $p = 0.001$ and that it is a large effect ($R^2 = 0.61$). Results from post-hoc analyses reveal that interviewers tend to use suggestive questions less frequently compared to invitations, directive and option-posing questions (all at: $p < 0.001$). In addition, they also use fewer option-posing than directive questions ($p = 0.008$). A second repeated measure ANOVA (Age x Questions) was conducted in order to measure the difference in the use of the five subtypes of questions (general invitations, cued invitations, time segmentation invitations, directive open-ended and closed-ended) based on children's age (see Table 2). Again, no main effect of age is noted $F(6.41, 166.58) = 0.91$, $p = 0.494$. Results however reveal a significant difference in the use of the five subtypes of questions: $F(3.20, 166.58) = 48.18$, $p = 0.001$ and it is a large effect ($R^2 = 0.48$). Post-hoc analyses have shown that interviewers use significantly less time segmentation invitations compared to all the other types of questions. Moreover, cued invitations are used less often than general invitations and open-ended and closed ended directive questions (respectively: $p = 0.003$; $p = 0.008$; $p = 0.012$). Finally, a univariate ANOVA was conducted to test whether there was a difference in the total number of questions asked by interviewers in relation with age groups and yielded a non-signification result $F(2, 52) = 1.11$, $p = 0.337$.

Table 3

Means and Standard Deviations (in Parentheses) of the Amount of Details Provided Based on the Type of Questions used and Children's Age Groups.

Questions	Age groups			
	3 ($n = 13$)	4 ($n = 18$)	5 ($n = 24$)	Total ($N = 55$)
Invitations	2.2 (2.5)	2.0 (2.2)	5.8 (4.0)	3.7 (3.6)
General	0.8 (0.8)	1.0 (1.1)	2.5 (2.7)	1.6 (2.0)
Cued	1.0 (1.0)	1.0 (1.2)	3.2 (2.8)	2.0 (2.3)
Time segmentation	1.0 (2.2)	1.5 (2.4)	2.2 (2.7)	1.7 (2.5)
Directive	1.3 (1.0)	1.3 (0.7)	2.1 (1.2)	1.6 (1.1)
Closed-ended	1.1 (0.6)	1.0 (0.6)	1.6 (1.1)	1.3 (0.9)
Open-ended	1.6 (2.1)	1.5 (1.0)	2.5 (1.9)	2.0 (1.8)
Option-posing	0.7 (0.5)	0.8 (0.7)	1.2 (0.6)	1.0 (0.6)
Suggestive	0.7 (1.3)	1.1 (1.7)	1.6 (2.2)	1.2 (1.9)
In total	6.2 (3.9)	7.7 (6.1)	14.7 (6.8)	10.4 (7.0)

3.3. Total number of details by age group

A univariate ANOVA was conducted to verify the variations in the total number of details obtained in regard to age groups. Results were significant $F(2, 52) = 11.03$, $p = 0.001$ and revealed a large effect ($R^2 = 0.55$). As expected, Tukey's post-hoc revealed significant mean differences where children aged five years old gave more details than those aged three and four years old (respectively: $p < 0.001$, $p = 0.001$). However, there is no significant difference between three and four years old ($p = 0.763$).

3.4. Number of details in relation to the type and subtype of questions and age

In order to examine the association between the types of questions (invitations, directive, option-posing and suggestive) and the number of details obtained, a repeated measure ANOVA (Age x Question) was conducted (see Table 3). Findings reveal that the number of details obtained varies as a function of questions asked $F(2.04, 106.25) = 20.60$, $p < 0.001$ and this is a large effect ($R^2 = 0.28$). Invitations yielded significantly more details compared to all other types of question (respectively: $p = 0.001$, $p < 0.001$, $p < 0.001$), followed by directive questions which lead to more details than option-posing and suggestive questions (both $p < 0.001$). There is no significant difference between the number of details provided using option-posing and suggestive questions ($p = 0.163$). The age of children was not associated with the number of details provided based on the types of questions used by interviewers, $F(4.09, 106.25) = 2.13$, $p = 0.081$. However, with regard to the total number of details, children aged five years old gave overall more details (in response of all types of questions) compared to those aged three and four years old (respectively: $p = 0.003$, $p = 0.004$).

As for the five subtypes of questions (see Table 3), results from the repeated measure ANOVA indicated that the number of details provided differed based on the subtypes of questions $F(3.2, 166.15) = 3.22$, $p = 0.022$ and it is a moderate effect size ($R^2 = 0.06$). Post-hoc analyses revealed that general invitations and time segmentation invitations generally yielded fewer details than open-ended directive questions (respectively: $p = 0.02$, $p = 0.003$), while time segmentation invitations provided more details than closed-ended directive questions ($p = 0.045$). There was no significant association between the age of children and the number of details provided based on the subtypes of questions used by interviewers $F(6.39, 166.15) = 0.85$, $p = 0.542$. Here too, children aged five years old gave more overall total details in response to all subtypes of questions than those aged three and four years old (respectively: $p = 0.006$, $p = 0.008$).

4. Discussion

The main objectives of the present study were to better understand the behaviors of interviewers in a real investigative context with preschoolers, and to determine whether there was a relation between the types of questions used and the number of details provided by children. An innovative aspect of the study was to differentiate between subtypes of directive questions (open-ended and closed-ended) and compare them to subtypes of invitations (general, cued, time segmentation). Results have shown that interviewers generally adhere to best practices when conducting an investigative interview with CSA and this tendency does not vary as a function of children's age. Nevertheless, the age of children and the types or subtypes of questions used are associated with the total production of information during the interview. These findings support the fact that children as young as three years old are able to produce short but informative responses when questioned appropriately about the CSA incident (Hershkowitz et al., 2012; Walker, 2013) and suggest reconsidering the types of question that should mainly be used with them.

4.1. Interviewers' behaviors

On one side, and since the accuracy of the information obtained is crucial in the context of an investigative interview, findings from the present study are encouraging. By using significantly fewer suggestive questions than all other types of questions (invitations, directive or option-posing), as well as significantly more directive questions than option-posing questions, investigators have demonstrated a style of questioning that is associated with obtaining more accurate (Peterson et al., 1999; Waterman et al., 2000) and productive (Lamb et al., 2008) reports of events among preschoolers. Moreover, this questioning style is in line with the recommendations made by authors concerning interview best practices (Lamb et al., 2008; Lyon, 2010, 2014; Orbach et al., 2000; Walker, 2013). In addition, these findings contradict results from recent studies that revealed that Canadian interviewers use more closed-ended questions, of which more option-posing questions than directive questions, when interviewing children (Luther et al., 2014; Roberts & Cameron, 2015). This difference between Canadian and Quebecer interviewers can potentially be explained by the differential training process, since interviewers from Quebec are trained using the NICHD protocol. This standardized protocol promotes the minimization of closed-ended questions, the avoidance of suggestive questions and the increase up to three times more open-ended questions (Benia, Hauck-Filho, Dillenburg, & Stein, 2015; Cyr & Lamb, 2009; Lamb et al., 2008; La Rooy et al., 2015; Orbach et al., 2000). However, the age of children does not affect the number nor the types or subtypes of questions used by interviewers. Hence, interview practices are similar for all preschoolers.

On the other side, interviewers use general invitations with children aged three to five years old as recommended, but they also use as many open-ended or closed-ended directive questions in order to obtain details compared to cued invitations and time segmentation invitations. Hence, it seems difficult for interviewers to adhere to best practices when they are trying to get more information using a subtype of question that specifically uses cues. These findings contradict Lamb et al.'s (2003) who found that interviewers used cued invitations more frequently than general invitations, among four, five and eight-year-olds (compared to six and seven-year-olds). Thus, in our study, interviewers from Quebec who were trained to follow the NICHD interview protocol use more invitations and directive questions to obtain information, which contrasts with other studies that revealed a clear preference for directive questions compared to invitations (Andrews et al., 2015; Yi et al., 2014).

4.2. Age group and total number of details

Firstly, there was no significant interaction effect between age and the types of questions used with regard to the number of details provided, which contradicts the hypothesis concerning the developmental threshold. It was initially expected that children aged three years old would provide more details following directive questions compared to invitations, while invitations would allow five-year-olds to provide more details in contrast with directive questions. The presence or absence of interaction between these variables can potentially be explained by the variation in age span. In fact, in the studies that did find significant interaction effects, children were older (three to six years old in Hershkowitz et al., 2012; four to eight years old in Lamb et al., 2003) compared to the present study.

Secondly, and as expected, the five-year-olds gave more details in total, as well as overall in response to all types and subtypes of questions than younger counterparts (three and four-year-olds). This finding is in accordance with those reported in other studies in the field, where authors generally observe an increase in the number of details provided in relation with children's developmental abilities (Feltis, Powell, & Roberts, 2011; Hershkowitz et al., 2012; Lamb et al., 2003, 2008; Snow et al., 2009). Further research is needed, however, in order to better understand the associations between these variables among three and four year old children considering the absence of significant difference between these two groups.

In sum, the variation in the production of details following different types and subtypes of question cannot be explained in terms of age. Hence, findings discussed in the following sections concern preschoolers in general, without discrimination based on specific age group.

4.3. Types of questions and number of details

Results reveal that the types of question are associated with a variation in the number of details obtained from preschoolers. Invitations yielded significantly more details than all other types of question, which is in line with the consensus in the literature indicating that invitations contribute to more detailed and productive descriptions of the event among young children (Feltis et al., 2010; Hershkowitz et al., 2012; Lamb et al., 2003; Snow et al., 2009). Contrary to the findings reported by Korkman et al. (2008), directive questions come second after invitations, but before option-posing and suggestive questions in terms of the number of details obtained, which incidentally supports findings from other studies with similar results (Andrews et al., 2016; Hershkowitz et al., 2012; Lamb et al., 2008). Findings thus confirm the present study's hypothesis, namely that invitations and directive questions would lead to a greater number of details than option-posing or suggestive questions.

It seems preferable to prioritize invitations and directive questions to obtain information among preschoolers as young as three years old, but what about their ambiguity concerning their respective effectiveness? Results have shown that invitations are more informative than directive questions, which supports the recommendations on interview best practices (Lamb et al., 2008; Lyon, 2010; Olafson & Kenniston, 2008; Orbach et al., 2000; Walker, 2013). Lamb et al. (2003) proposed to

replace directive questions such as "who, what, when" by invitations, since the latter result in the same type of information among young children. While the NICHD interview protocol's structure fits these recommendations and is considered to be adapted for preschoolers, the analysis of question subtypes reveals that few clarifications are warranted.

4.4. Question subtypes and number of details

An innovative aspect of the present study is to explore the relationship between the number of details obtained in preschoolers' answers and the subtypes of invitations (general, cued, time segmenting) or directive questions (open-ended, closed-ended) used by interviewers.

A first hypothesis based on Hershkowitz et al. (2012), stated that open-ended directive questions would produce a similar number of details as compared to general or cued invitations. This hypothesis was only partially supported in the present study. Contrary to our initial expectations, open-ended directive questions yielded more information than general invitations, but, as expected, did not differ from cued invitations. In other words, preschoolers who have been victims of sexual abuse tend to provide more information following open-ended questions using cues that was previously mentioned by the child (cued invitations and open-ended directive) compared to open-ended questions without cues (general invitations). First, this finding is in accordance with Hershkowitz et al.'s (2012) hypothesis concerning the similarity of the role of directive questions and cued invitations among young children whose cognitive development is less mature. A more structured formulation of questions (such as in open-ended directive questions or cued invitations) seems to help them better identify the information that is requested and thus provide more productive answers (compared to general invitations). Findings suggest that interviewers should formulate more specific questions that contain a clue previously mentioned by the preschooler. For example: "Tell me more about your clothes (cued invitation)ör 'What happened to your clothes? (open-ended directive)šhould be use instead of "Then what happened? (general invitation). If the child never mentioned the clue, then these questions are suggestive which should be avoided ("Your pants were open, right?"). To illustrate otherwise, here is an example of a child's response to an interviewer: "I was in Mama's room when he touched my belly'. These are now the cues available to formulate next questions. According to current interview best practices guidelines, it would be recommended to continue with a general invitation ('Tell me everything about that'). Yet, findings showed that there are few chances that preschool-aged children will give a specific answers to that type of questions. Interviewers should rather prioritise cued invitations ("You mentioned that he was touching your belly, tell me everything about that") or open-ended directive questions ("How did he touch your belly?"), but currently the research does not know yet which of those two options would be preferable to obtain a greater amount of information. Nevertheless, from a practical standpoint, considering the importance of giving interviewers coherent interview practices which can be generalized from preschool-aged to school-aged children, it might be beneficial to prioritize cued invitations, since research showed that they allow the production of details in these two age groups, as well as more accurate details (Brown et al., 2013; Lamb et al., 2003). Second, the absence of a significant difference between open-ended directive questions and cued invitations may reveal a problem of categorization between some subtypes of questions, as previously mentioned by others. Indeed, some authors indicate that there is an oscillation of directive questions between an open-ended and closed-ended formulation (Lyon, 2014), as well as a similarity between directive questions that are 'very' open and general invitations in their relative ability to provide details (Andrews et al., 2016). Accordingly, further research is needed in order to better understand the confusion about the role or the categorisation of invitations and directive subtypes in relation to the amount of information collected among preschoolers.

At last, the analysis of question subtypes indicates that the production of details associated with invitations is lower (general or time segmentation invitations) or the same (cued invitations) compared to open-ended directive questions. While Lamb et al.'s (2003) findings indicate that cued invitations are associated with a greater production of information compared to other types of invitations among preschool-aged CSA, the present study reveals a similar relation with open-ended directive questions. Considering these two studies, it is difficult to determine which of these two question subtypes provides more information among preschoolers. Hence, further research is needed in order to shed some light on the underlying mechanisms associated with detail production in relation with cued invitations and open-ended directive questions.

A second hypothesis put forth in the present study stated that the number of details provided would be inferior following closed-ended directive questions compared to all other subtypes of open-ended questions. This hypothesis was only partially confirmed since only time segmentation invitations yielded more details than closed-ended directive questions. Moreover, there was no significant difference between open-ended and closed-ended directive questions. These findings can potentially be explained by the very young age of children in the present study. Hence, their ability to elaborate and provide detailed and complex answers during the interview are limited compared to older counterparts (Lamb et al., 2003, 2008; Orbach et al., 2000), which may also explain why analyses failed to uncover a statistical mean difference for these different subtypes of questions.

4.5. Limitations

One limitation of the present study is inherent to all field studies and it concerns the inability to verify the accuracy of the information provided by CSA during the investigative interview. Another limitation concerns the absence of a measure to assess children's cognitive and verbal development. Indeed, there are potential individual variations in children's abilities that can remain undetected when looked at in terms of age groups. This type of measure could have helped us assess

the relations between the production of details and children's developmental levels more precisely. Finally, the analyses conducted do not allow us to establish a causal relationship between the variables.

4.6. Implications and directions for future studies

The present study uncovered new and unpublished evidence concerning the types and subtypes of questions used by police officers in Quebec when conducting an NICHD investigative interview with CSA who are five years old and younger. In addition, the analysis of questions reinforces the importance of using open questioning among preschoolers in order to obtain more detailed information (Hershkowitz et al., 2012; Lamb et al., 2003, 2008), but also reveals that there is some confusion regarding the subtypes of open-ended questions to be used (general invitations, cued invitations or open-ended directive questions), which correspond to the preoccupations noted in other studies in the field (Andrews et al., 2016; Hershkowitz et al., 2012). Given that the best practices in investigative interviews are currently based on samples including school aged children, it is necessary to reconsider the recommendation to use general invitations as a priority when investigating with preschool-aged CSA. At this age, results indicate that it is rather the open-ended directives questions and cued invitations that are associated with more details about the incident. Accordingly, this study should be replicated in order to better document and understand how to adapt these recommendations to the particular needs of preschoolers. Further research is also needed in order to better understand: 1) what is the difference between cued invitations and open-ended directive questions among preschoolers?; 2) does their similitude suggest a categorization problem of question subtypes or a developmental difference between preschoolers and school-aged children? Future studies should also look into the quality of disclosure, as usually measured by the number of details provided. Yet, this way of measuring quality is limited since it does not allow us to know if the child answered the questions correctly, i.e. if he/she provided the information expected by the interviewer. In other words, the fact that some children have a difficult time answering questions could be due to the type of content sought by the question (e.g., description of the person, location, clothes) or to the combination between the type of content and the type of question. Measuring the concordance between question content and answers content may help us better understand children's ability to answer specific questions in relation with their age (e.g., what type of question should be used to obtain information on a specific location with three-year-olds?). Ultimately, the objective is that these really young victims can have the best conditions to produce a credible and convincing testimony, in order to facilitate the application of the principles of justice in the case of a judicial process.

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