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Developing a Functional Code System to Analyze Forensic Interviews with Suspected Victims of Child Sexual Abuse

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Abstract
This study aims to establish a coding system to analyze forensic interviews in order to systematically explore and understand "what works" for getting relevant information from child abuse victims. A forensic interview is a method of gathering information about allegations of sexual abuse from vulnerable children intended to further law enforcement and child protective investigations in a developmentally sensitive and legally sound manner (Cordisco-Steele, 2012; Newlin et al., 2015). Knowing what works in forensic interviews allows for better protection of children and families by improving interviewing techniques across the professional practice of helping children disclose information related to alleged victimization. The use of information from child interviews to address civil, protective, and criminal decisions varies among communities, whether international, national, or more local jurisdictions.

In the U.S., the use of forensic interviews is well established in Children's Advocacy Centers (CACs) where child protection and legal prosecution are integrated through the multidisciplinary team. However, only a small number of CACs exist in Brazil due to lack of funding and cooperation among institutions responsible for child abuse cases. Professionals from legal, medical, and social service systems often repeatedly interview child abuse victims. A strong debate exists in Brazil about the best way to listen to children to assess for suspected child abuse. Professional social work and psychology boards currently support the use of classical social and psychological evaluations and do not recommend the involvement of forensic interviewers in court settings (Conselho Federal de Psicologia, 2018; Moller & Diniz, 2017). According to the boards, the role of the social worker or psychologist is to heal the child of his or her trauma, assist the family to access their rights and make recommendations to the courts, but not actively investigate abuse allegations. In 2011, an estimated 28,525 Brazilian children (.5 per 1000), as compared to 61,472 U.S. children (2.4 per 1000), were reported at risk of being sexually abused to respective Brazilian and U.S. child abuse hotlines (Instituto Brasileiro de Geografia e Estatística, 2018; Ministério dos Direitos Humanos, 2011; U.S. Department of Health & Human Services, 2012). The purpose of the current study is to fill a gap in the existing knowledge in the field by using Brazilian and U.S. interviewers and coders to develop and assess the usefulness of a functional coding system to analyze interviews of child abuse victims involved in Brazilian court settings in order to support the work of the professionals in charge of the task in Brazil.

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Literature Review

Research illustrates several ways of coding question types aimed at studying the behavior of the interviewers and how they talk with children about suspected child abuse and neglect. Oxburgh, Myklebust, and Grant (2010) discussed significant discrepancies among academic researchers and practitioners over how best to describe types of questions, and proposed a psychological and linguistic framework to compare existing coding systems. They described coding systems as falling into two categories: (1) productive or appropriate question types and (2) unproductive, risky and inappropriate. These authors point out the problem of how some question types are described as belonging to more than one main category. For example, what/where/when/why/who/how (5WH) questions sometimes appear in the existing literature as a type of open question, as they may generate free narratives and longer responses from interviewees when compared to closed questions. In order to address this problem, Oxburgh et al. (2010) proposed a linguistic approach by considering the *function* or *purpose* of a particular utterance. Instead of using the question format to focus on the phrasing of questions, they proposed figuring out what the interviewer was trying to achieve by asking a particular type of question at a particular time in the interview. In interviews designed to address child abuse, the interviewer seeks to obtain accounts of relevant facts by promoting free narratives on the part of children, usually by "funneling" from a non-sensitive to a more sensitive topic.

While there is extensive research concerning interview protocols, such as the National Institute of Child Health and Human Development (NICHD) Interview Protocol (Hackbarth, Williams, & Lopes, 2015; Williams, Hackbarth, Blefari, Padilha, & Peixoto, 2014), only limited efforts have been made to adapt these protocols to the Brazilian legal context. A meta-analytic review of the literature by Benia, Hauck-Filho, Dillenburg, and Stein (2015) found five studies that examined the effectiveness of the NICHD Interview Protocol, but none of these studies involved interviews conducted in Portuguese.

By using the following mixed-method research design, we studied the similarities and differences of how children are interviewed about allegations of sexual abuse in interview samples from Brazil and the United States. We focused on the function of the utterances to achieve two objectives: (1) the development of an analytical model to study forensic interviews to capture how the interviewers use their questions and (2) to determine the effect of that model on productive or unproductive accounts on the part of children. The University of Brasilia Ethics Committee provided approval for the study.

Method

Through a partnership between faculty and graduate students from The University of Brasilia and The University of Alabama, the study was conducted in two stages. The first stage involved developing interviewer-focused codes by using a protocol approach, i.e., "the collection and, in particular, the coding of qualitative data according to a pre-established, recommended, standardized, or prescribed system" (Saldaña, 2011, p. 151). American and Brazilian research teams developed the interviewer codes through four successive refinement rounds of independent coding of both English and Portuguese interview transcripts during the first stage of the study. In the second stage of the study, researchers then applied that coding system to a sample of child interviews transcribed in both Portuguese and English and taken from interviews conducted by a team of social workers and psychologists working in a Brazilian civil court of protection in 2011. The following sections describe the analytical procedures used by the Brazilian and American research teams to collaboratively create and refine the coding system.

Stage One of Study: Initial Version of Interviewer-Focused Codes

The first version of the coding system intended to analyze the utterances of the interviewer originated from two sources and consisted of 32 codes in English. Researchers derived 31 codes from a detailed description of social work interview processes by Kadushin and Kadushin (1997). One additional code was derived from a study by Lamb, Hershkowitz, Orbach, and Esplin (2008), which examined the type of questions that prompted interviewees to provide free recall memories.

Two independent coders then used these codes to analyze an example of an interview provided in a publication about the NICHD Structured Interview Protocol (Lamb, La Rooy, Malloy, & Katz, 2011). A Brazilian native Portuguese speaker fluent in English, and a monolingual American English speaker with 10 years of experience in a child advocacy center and a Master's degree in social work, served as the independent coders. Both had extensive experience as forensic interviewers in their respective countries. For the first test of the interviewer-focused codes, they independently analyzed 63 utterances from the NICHD Protocol example. The outcome of the analysis indicated a low simple correlation [i.e., where both interviewers agreed upon the primary and the secondary code (23%) for all utterances]. A simple agreement of 44% was achieved regardless of whether codes were identified as primary or secondary with the kappa ranging from −0.17 to 0.41. This result was consistent with

literature saying the first rounds of independent coding typically generate lower agreement, but could be improved by successive coding and consensus rounds (Hruschka et al., 2004). The consensus discussion identified sources of disagreement and resulted in the following: (1) improving the selection of piece of utterance to be coded; (2) excluding codes not related to the central aspects of the interview; (3) including examples of utterances to illustrate the categories; (4) addressing the overlapping definitions of codes derived from Kadushin and Kadushin (1997) and Lamb et al. (2011) concerning the probing process to obtain additional information and directive questioning; and (5) recognizing the interference of both cultural and language issues in defining the codes and use of technical terms.

Second Version of the Interviewer-Focused Code

The second version of the interviewer-focused code derived from testing the codes from the previous consensus meeting used a de-identified interview transcript in English, where a U.S. law enforcement official interviewed an 8-year-old boy as part of an investigation of suspected interfamilial abuse in the late 1990s. For the test of the second version of the interviewer-focused codes, we selected 630 interviewer utterances in English for independent coding by the first author and an English-speaking doctoral candidate in social work from the U.S. The independent coding resulted in a 41% simple agreement. A detailed analysis indicated how three codes alone accounted for more than 63% of the disagreement. These codes represented core competencies in the forensic interview (i.e., detailing and amplifying the interviewee narrative and using external information within the interview to cover relevant facts regarding the target event). Further analysis identified several reasons for the low agreement outcome: (1) the selected sample from the interview conducted in the 1990s included extensive use of suggestive and even coercive utterances; (2) overlapping of some code definitions; and perhaps most importantly; (3) the lack of a theoretical model underlying the coding system. To address these problems, the code list was revised and merged to incorporate findings from memory research and a theoretical model. From memory research, researchers used the concepts of *free recall memory* and *recognition memory* probes (Faller, 2007; Saywitz, Lyon, & Goodman, 2011). As a theoretical model, researchers relied on the *funnel approach* (e.g., interviewer gradually moves the attention of child from neutral subjects to issues of concern) (Anderson et al., 2009; APSAC, 2012; Fisher & Geiselman, 2010; Lamb et al., 2008). Utterances used by interviewers to explore and probe as function to tap the *free recall memory* were used to code the efforts to allow children describe their past experiences, including elements of who, what, where, and when something happened, and depending on the cognitive abilities of the child (Faller, 2007; Lamb et al., 2008; Lyon, Ahern, & Scurich, 2012; Saywitz & Camparo, 2009). Saywitz and Camparo (2009) define probing *recognition memory* utterances as those in which the interviewer provides choices and the child selects the correct one. Thus, the interviewer presents recognizable details and the child merely affirms or denies that information. Utterances that probe recognition memory generally limit the child's response to a single word and should be carefully used. The *funnel approach* captures the efforts of the interviewer to gradually move the attention of the child from neutral subjects to issues of concern, as recommended by such widely used forensic interview protocols as the Cognitive Interview (Fisher & Geiselman, 2010), the NICHD Protocol (Lamb et al., 2008), and The American Professional Society on the Abuse of Children (APSAC) Guidelines (2012).

Third Version of Interviewer-Focused Code

The third version of the interviewer-focused code was tested on a transcript in English of an interview conducted by a U.S. forensic interviewer at a children's advocacy center (CAC). This interview with a 6-year-old girl was part of a broader investigation conducted by a multidisciplinary team to evaluate possible sexual abuse. The first author was the first coder and the second coder was a Brazilian social worker, fluent in English, with more than 12 years of experience conducting psychosocial evaluations in Brazilian court settings. Additional training for the use of the third interviewer-focused code was performed by consensually coding other sample interview transcripts. We used 214 utterances from the selected transcript for consensual coding and 253 utterances for the independent coding test. The outcome of this independent test using an English transcript with English codes and English code definitions with two Brazilian coders fluent in the language improved the kappa statistic for nine of the twelve codes (kappa $\geq$ 0.6). A new consensus round provided fewer adjustments to the interviewer-focused code for one last trial that used a Brazilian-Portuguese translation of codes and code definitions and a Brazilian-Portuguese interview of a child from a Brazilian court setting.

Final Version of Interviewer-Focused Code

We tested the fourth interview-focused code with a Brazilian-Portuguese transcript purposively selected from a pool of 31 psychosocial interviews with children suspected to be victims of child sexual abuse referred to a Brazilian civil and protective court for children. The interview used for the last independent coding test was with a 6-year-old female victim of intrafamilial sexual abuse. All 105 interviewer's utterances were selected for the independent code test. Two native Brazilian-speaking coders used

the Brazilian-Portuguese codes and definitions to independently code a Brazilian-Portuguese transcript that resulted in good agreement statistics for 10 of 12 codes (kappa ≥ 0.6). Only two codes remained below the threshold selected for finishing the development of the code system: *Suggestive* utterances and *Allegation Driven* utterances. This was probably due to the low frequency of these codes in the sample. Suggestive utterances occurred when the interviewers used details of the offense or information about the alleged offender not previously mentioned by the child. *Allegation Driven* utterances used information obtained from external sources regarding the disclosure or the allegation without mentioning the alleged offender and/or offense. A last consensus meeting refined and finalized the underlying empirical and theoretical concepts, codes, and definitions used to code interviewers' utterances (see Table 1).

Second Stage of Study: Analysis of Interviewers and Children's Utterances

In the second stage of the study, researchers used the interviewer codes described in Table 1 to code a sample of 31 child interviews transcribed in Portuguese taken from an overall total of 66 interviews conducted by a team of social workers and psychologists working in a Brazilian civil court of protection in 2011. While the analytic processes used to build the interviewer codes required the use of literature driven concepts in order to capture the expected verbal behavior of the interviewer during child sexual abuse (CSA) evaluation interviews, the development of the interviewee codes required an analytic process considering the nature and purpose of the evaluation of the children's narrative in forensic interviews, and was derived and improved from a research project by the second author of this paper. The core concept behind the interviewer-focused codes related to the continuum of interventions associated with finding out the function/purpose of the interviewer in probing free recall narratives and recognition memories from victims. The core concept behind the children's utterance-codes related to the disclosure of information relevant to abuse allegations, which also meets the functional criteria of the coding system. Children's codes were designed to figure out if the selected utterance was informative (i.e., related to facts regarding children's social context or the abusive event) or uninformative (i.e., not meeting the previous criteria). Each informative utterance, related or not related to sexual abuse, were ranked according to three levels of depth of the disclosure: new information, additional detail to information already disclosed, and repeating disclosed information (see Table 2).

Sample and Analytic Units

The sample consisted of 31 interviews with 28 girls (90.3%) and 3 boys (9.7%) with a mean age of 102.2 months (8.5 years), standard deviation of 47.2 months (3.9 years), and range from 3.1 to 17.1 years. We selected the sample from a total of 66 interviews conducted by a team of social workers and psychologists working in a Brazilian child protective court in 2011. The final sample of 31 was obtained after screening all 66 interviews for the following criteria: (1) all interview sessions with children were recorded; (2) the alleged offense was a CSA-related case; and (3) the interview was conducted individually with just one child.

The qualitative study of the interviews required the identification of the units within the transcripts for analytical purposes (Saldaña, 2011). Each unit was operationalized using the definition of an utterance as a continuous stream of acts of speech bounded by pauses or interruptions and can be identified in two ways, (1) when the communicative flow of a significant participant in a dialogue is interrupted by a new speech act from another participant in a dialogue or (2) when a single individual uses periods of silence or short breaks to interrupt his or her expressive flow of communication (Laver, 2001). A total of 28,978 interviewers and children's utterances were identified.

The qualitative analysis encompassed the process of attaching codes to each of the interviewers and interviewees' utterances. Because of feasibility and time constraints, a single coder (the first author) applied the categories described in Tables 1 and 2 to analyze the 31 interviews with the aid of Atlas.ti qualitative software. Raw frequencies for each interviewer and child code were exported to spreadsheet tables and then converted to proportions in order to avoid spurious effects related to the length of the interview. This transformation offered the benefit of making all of the interviews comparable, regardless of length, so that the final analysis was proportionate for each code within the interviews.

To assess contextual differences, we categorized child interviews into two groups: disclosing of abuse (16 children) and non-disclosing or unclear disclosing of abuse (15 children). The effects of number of sessions, age of child, and the amount of time between the formal disclosure and the date of the interview were analyzed in relation to interviewers and children's codes from Tables 1 and 2. We used Pearson correlations (r) and multivariate analysis of variance (MANOVA) to (1) describe the characteristics of utterances from interviewers and children, (2) the relationship among different types of utterances, and (3) the relationship among these utterances and case variables, such as children's age, number of sessions, and case outcomes.

Table 1 Codes used with interviewers' utterances

Underlying empirical/theoretical concept	Interviewer's code	Definitions
Funnel approach	Information about the objective (Inf Obj)	Explains purpose of interview; informs child on general interview procedures, such as recording or sequence of interview steps. For example, "Our job is to talk to children about things that may have happened to them."
Funnel approach	Information about rule (Inf Rul)	Explains rules of interview process to meet objectives more efficiently. Provides rules of how to act or speak in forensic interview. For example, "it is alright to answer 'I don't know'."
Funnel approach	Information generic (Inf Gen)	Shares information with child regarding needs of interview in general but in a way that cannot be coded as purpose of interview or rules
Funnel approach	Relationship maintenance (Rel Maint)	Improves and maintains relationship bond/builds rapport between interviewer and child to support objectives of interview: "I'm glad to meet you. How are you?" Demonstrates understanding, concern and empathy for child; encourages, praises and values qualities and coping strategies of child. Identifies and validates feelings expressed by child. Use of humor can be expression of support and maintenance of relationship
Funnel approach	Facilitating behavior (Fac Behav)	Encourages child to continue to speak informatively ("I understand," "okay," "alright," or "um-hum") or reflects previous utterance of child
Funnel approach/free recall memory probes	Narrative invitation (Nar Inv)	Encourages child in general to talk at length about topic by minimizing number of questions, changes of topic, and/or information introduced by interviewer (NCAC, 2012); elicits personalized reports about events lived by child. For example, "tell me more about it", "what happened next", "tell me everything from the very beginning to the very end."
Funnel approach/free recall memory probes	Focused narrative request (F Nar Rqst)	Explores and probes child's narrative about FACTS PREVIOUSLY DISCLOSED (NCAC, 2012) involving people, places, actions, objects, time. Encourages free recall memory to increase amount of information, and focus for dialogue: "Tell me about the visit at your grandmother's house" or "Tell me more about the game you said the two of you played in her bedroom."
Funnel approach/free recall memory probes	WH question (WH Quest)	Focuses on specific aspects of FACTS PREVIOUSLY DISCLOSED by the child using "what," "where," "when," "who," "why," or "how" question format (Saywitz, Lyon, & Goodman, 2011); aims to get specific contextual information about child's experience (Faller, 2007b)
Funnel approach/probes free recognition memory	Multiple choice question (MC Quest)	Presents possible answers for child to "select" the "correct" one: "Did that happen once or more than once?" Used for utterances seeking details about allegation, after child disclosed abuse; does not imply or suggest particular answer: "When that happened, were you in your bedroom or the bathroom?"

Table 1 (continued)

Underlying empirical/theoretical concept	Interviewer's code	Definitions
Funnel approach/probes free recognition memory	Yes–no question (YN Quest)	When child actively discloses abuse, utterance seeks additional, specific information, not yet disclosed by child: "He said something to you?" "He touched you in some part of your body?" If child has **not** already disclosed abuse and interviewer asks this type of question, code as suggestive utterance
Funnel approach/probes free recognition memory	Allegation driven (Allg Driv)	Utterance includes information available to interviewer prior to interview: "I heard you talked to social worker at school about what happened." This code should only be used when the child has not previously mentioned the information, and interviewer utterance is generic and does not include specific details of information source and/or alleged abuse. Code as "suggestive" if interviewer introduces specific details of abusive act and/or information source. Allegation Driven may include information on how disclosure of abuse occurred: such as information on how and to whom child disclosed abuse prior to current interview
Funnel approach/probes free recognition memory	Suggestive (Sug)	Includes information not previously provided by child on specific aspects of the violence and the alleged offender and which implies a strong expectation about what the children can say, restricting their response ("did he force you to do this, didn't he?" "he is a very bad person for doing this, isn't he?"). This code should also be used when the interviewer affirms, assumes or includes details unsaid about the violence and the possible offender, particularly when the child is not yet talking about the abuse. These utterances may apply when the interviewer confirms, denies, recognizes or chooses details about abuse that were not mentioned ("child: the man took me in the room - interviewer: he laid you in bed?"). If the child already started the narrative about violence, do not code as "suggestive" the utterances that focus the child's attention to details or aspects of the abuse not mentioned, BUT THAT DOES NOT IMPLY the interviewer expects or desires a particular response: "he touched you at the top or at the bottom of underwear?" In the example, there is no induction of responses, just the need to get specific information about the abusive incident if the child has already disclosed

Table 1 (continued)

Underlying empirical/theoretical concept	Interviewer's code	Definitions
Funnel approach/probes free recognition memory	Other recognition memory prompt (Othr Rec Mem)	Explores and probes narrative of child by providing information brought by interviewer. Provide information that should be recognized, evaluated, and referred to by child. Saywitz et al. (2011) define the recognition memory utterances as when the interviewer "provides choices and the child selects the correct one. Thus, the interviewer provides details that the child merely affirms or denies. Probing recognition memory generally limits the child's response to a single word." Use this category if recognition memory prompt cannot be coded elsewhere

Table 2 Children's code set

Information on child's social context	Disclosure of CSA	Code	Definition
Non-informative	Not related	Other (Othr)	Non-informative utterance does **not** provide information about child, social context of child's life, or pending allegation
Informative	Not related	Known Information (Knwn Info)	Informative utterance related to FACTS PREVIOUSLY DISCLOSED or repeated information about child or social context of child's life
Informative	Not related	Additional details about facts previously disclosed (Add Knwn Info)	Informative utterance providing new information about child or social context of child's life that ADDS detail about FACTS PREVIOULSY DISCLOSED (who, what, where, when, why, how)
Informative	Not related	New information (New Info)	Informative utterance sharing of NEW personal information or information of social context of child's life about FACTS NOT PREVIOUSLY DISCLOSED within interview (who, what, where, when, why, how)
Non-informative	Related	Avoidance of sharing information on CSA allegation (Avoid Info SA)	Non-informative utterance that avoids providing new information regarding child sexual abuse allegation, such as "I don't want to talk about it" or "I am afraid to tell you."
Informative	Related	Known information on sexual abuse (Knwn Info SA)	Informative utterance sharing FACTS PREVIOUSLY DISCLOSED or repeated information about sexual abuse allegation
Informative	Related	Detail about known information on sexual abuse (Add Knwn Info SA)	Informative utterance that ADDS a new detail about FACTS PREVIOUSLY DISCLOSED (who, what, where, when, why, how) regarding sexual abuse allegation
Informative	Related	New information about sexual abuse (New Info SA)	Informative utterance providing NEW information about FACTS NOT PREVIOUSLY DISCLOSED (who, what, where, when, why, how) regarding sexual abuse allegation

Results

Characteristics of Interviewer's and Children's Utterances

The interviewers in this sample were more talkative than children as interviewers performed nearly 64% of all utterances in contrast with almost 36% of children's utterances (n = 28,978). The interviewer's most frequent utterance was the recognition memory prompt *Yes–No Questions* (f = 5036, 17.4% of the sample). Interviewers also invested much of their time building rapport, as *Relationship Maintenance* was the second most frequent utterance (f = 3537, 12.2% of the sample). The third most frequent type of utterance was *Facilitating Behavior* (f = 3151, 10.9% of the sample), in which interviewers tried to keep children talking by

echoing their answers or providing small encouragements, such as "okay" or "I see." *WH Questions* (asking details of who, what, where, how, or when about issues already provided by children) was the most frequent free recall prompt used (f = 2692, 9.3% of the sample). Interviewers also frequently shared general information with children as *Information Generic* occurred often (f = 2277, 7.9% of the sample). *Information about the Rule* and *Information about the Objective* occurred less often, 376 times (1.3% of the sample) and 670 times (2.3% of the sample) respectively.

The least common strategy by the interviewers was providing *Suggestive* utterances (f = 75, .3% of the sample). This means interviewers seemed cautious about bringing details of the alleged abuse or abuser into the interview. On the other hand, some of the most studied prompts to get reliable information from children, the *Narrative Invitation* (e.g., "tell more about that") was used only 112 times (.4% of the sample), as well as *Focused Narrative Request* (e.g., "tell me more about your day in the zoo") (f = 184, .6% of the sample). *Allegation Driven* utterances that bring details into the interviews about the disclosure process were also used infrequently (f = 132, .5% of the sample). *Other Recognition Memory Prompt* (i.e., a residual category of recognition memory utterances) occurred also at a low frequency rate (f = 140, .5% of the sample), as well the recognition memory prompt considered by the literature to be less leading than other similar prompts: *Multiple-Choice Question* (f = 238, .8% of the sample).

In studying how the children in this sample responded to the interviewer's prompts, we found the children mostly provided uninformative utterances, as *Other* utterances occurred in high frequency (f = 4189, 14.5% of the sample). *New Information* (e.g., sharing information regarding their social environment not previously disclosed within the interview) occurred almost as frequently (f = 4003, 13.8% of sample). These children often times repeated information already shared regarding their lives or social context, as *Known Information* occurred 839 times (2.9% of sample). Children also provided *Details about Known Information* 543 times (1.9% of sample) regarding issues of who, what, where, when, and how of a previous disclosed fact. Finally, as could be expected in the context of interviews with children being assessed for suspected sexual abuse, these children provided 326 *New Information about Sexual Abuse* (1.1% of sample). On the other hand, they seemed unwilling to repeat details of their abusive experiences, as *Known Information about Child Sexual Abuse* occurred only 75 times (.3% of sample) and *Details about Known Information on Child Sexual Abuse* occurred 102 times (.4% of sample). Utterances, such as "I don't want to talk about it" or "I'm afraid to tell you" (i.e., *Avoidance of Sharing Information on Child Sexual Abuse*) occurred 281 times (1% of sample).

Relationship Between Interviewer and Children's Utterances

In order to determine which of the interviewer's utterances prompted relevant information sharing by the children, Pearson correlations (*r*) were calculated between each pair of interviewer and children's codes. Concerning the initial preparations to get the child ready for the process of sharing information relevant to protective and legal purposes, we found some significant correlations. It would be expected that information sharing on the part of the interviewer would be related to children sharing relevant information. Alternatively, children's unproductive responses would be expected to prompt the interviewer to deliver more information relevant to the interview. One code designed for that purpose, *Information Generic*, was negatively correlated with *New Information about Sexual Abuse* ($r = -.41$, $p < .03$). This could mean that when interviewers engage in too much discussion in preparation for the interview that children may tend to tell less about the abuse. Alternatively, the interviewers may provide more information about the evaluation in general when they sense a child is likely "not to tell."

Contrary to what we expected, *Relationship Maintenance* utterances did not correlate with case variables or other utterances of the interviewer. This was an intriguing outcome for two reasons: it is an important purpose/function of the interview and it was expected to help children be more confident in discussing their experiences. *Facilitating Behaviors* involve the interviewers' act of reflecting back and demonstrating attentiveness to what the child says: prompts like "okay," "I see," "um-hum," or by reflecting back or paraphrasing what the child previously said (e.g., "you told me your dad touched your pee-pee"). Interviewer *Facilitating Behavior* seemed to function most successfully by helping children disclose facts regarding abuse allegations, suggesting its potential to keep children talking informatively. *Facilitating Behavior* positively correlated with both *Known Information on Sexual Abuse* ($r = .44$, $p < .02$) and *Detail about Known Information on Sexual Abuse* ($r = .36$, $p < .05$). This could mean that interviewers have more opportunity to use facilitators with children who talk more about the abuse. *Facilitating Behavior* also helps children stay focused, by negatively correlating with *Avoidance of Sharing Information on Sexual Abuse* ($r = -.52$, $p < .01$). *Facilitating Behavior* may help children stay focused or this could mean interviewers use *Facilitating Behavior* less often with children who avoid discussing abuse.

As for the interviewer utterances that probe free recall memories, we found mixed results. We expected free recall prompts to be positively correlated with more relevant information from children. In terms of the production of detailed narratives, a positive correlation occurred between *Focused Narrative Request* and *Detail about Known Information*

(r = .52, p < .01). As expected, the more interviewers probed children by requesting them to provide pieces of information of a specific non-abusive topic already disclosed, the more children provided this type of information. *Negative* correlations occurred between the free recall prompt *WH Question* and the following children utterances: *Detail about Know Information* (r = − .39, p < .03), and *New Information* (r = − .37, p < .04). *WH Questions* were *positively* correlated with the code designed to capture children's avoidance or escaping behaviors when asked about possible abusive experiences, such as "I don't remember" or "I don't want to talk about it", which were coded as *Avoidance of Sharing Information on Sexual Abuse* (r = .44, p < .02). These findings regarding the use of the most directive of free recall prompts *WH Questions* seem to indicate a group of children that may be reluctant to share their experiences or just do not know the answer. These questions may be more difficult because they require the child to recall information.

The outcomes showed some statistically relevant information about the limits of memory recognition prompts in forensic interviewing. *Multiple-Choice Question* were positively correlated with *Avoiding Sharing Information on Sexual Abuse* (r = .42, p < .02), which may indicate that these recognition memory prompts were used more when children avoided talking about the core facts related to the allegation. The most frequent interviewer's behavior in the sample, *Yes–No Question*, was also positively correlated with *Other* utterances, the uninformative responses provided by children (r = .40, p < .03). *Yes–No Question*s were also quite ineffective in obtaining *New Information* from children (r = − .69, p < .01). The use of *Suggestive* utterances was very low (0.25% of all utterances) and no correlation was found between this strategy and codes from children's narratives.

The study also addressed case variables with the children and interviewers' utterances. The age of the child, number of sessions, and delay between the formal disclosure and the interview were studied in relation to all codes. A negative correlation between *Other* utterances and age was found (r = − .69, p < .01) that suggests the older the child, the greater the probability that he or she will be informative. Age correlated with other codes showing the same pattern that older children were more informative: *New Information* (r = .44, p < .02), *Detail about Known Information* (r = .53, p < .01) and also *Known Information* (r = .81, p < .01). The age of the child was negatively correlated with three interviewer categories: *WH Question* (r = − .53, p < .01), *Multiple Choice Question* (r = − .45, p < .01) and *Yes–No Question* (r = − .51, p < .01). This suggests the interviewers seemed to use different strategies with children according to the child's development level. Younger children may require more direct questions while older children may provide more qualified answers and require less probing.

Twenty-one children were interviewed in a single interview (67.7%) and ten children were interviewed in more than one interview (e.g., extended forensic interview). Age was negatively correlated with this variable (r = − .47, p < .01) meaning the younger the child, the greater the chance of being interviewed in more than one session. The number of sessions positively correlated with *Other* utterances (r = .42, p < .02) and negatively correlated with *New Information* (r = − .48, p < .01). These findings suggest that interviewing children in multiple sessions may tend to increase non-informative utterances and decrease factual information sharing. However, additional interviews may be required when the child does not provide critical abuse-related information during the initial session.

A MANOVA test was run using all of the interviewer's codes. MANOVA test of between-subjects effects was run on interviewer's codes. Only one variable, *Multiple Choice Question*, could successfully discriminate the group of children who disclosed the abuse (16 children, 51.6% of the sample, F = 8.714, GI = 1, p < .006, $h^2 = 0.199$) from children whose disclosure was unclear or children who did not disclose. The multivariate value $h^2 = 0.199$ (effect size) indicates that approximately 19% of multivariate variance of the dependent variable (interviewer's codes) is associated with group factor (disclosing children). The children whose narratives were detailed enough to belong to the disclosing group of children were questioned on average with more *Multiple Choice Questions* (Mean = .011, SD = .009, F = 5.87, GI = 1, p < .030) as compared with whose disclosure was unclear or children who did not disclose (Mean = .005, SD = .004, F = 51.07, GI = 1, p < .001). This may be related to the interviewer's need to obtain details about the abuse, or perhaps that interviewers preferred using *Multiple Choice Questions* to question children who were ready to disclose their abusive experiences. This outcome should be analyzed with caution, as the preliminary hypotheses checking on multivariate tests were non-significant (Wilks' Lambda = 0.523, F = 0.523, F = 1.194, p < .360).

Discussion

The code scheme presented here moved from question type to question function in order to study their relationship to the productivity of children's narratives on disclosing facts about their lives and their abusive experiences. The code system was developed in a multicultural setting to address how a specific group of social workers and psychologists interviewed children referred to a Brazilian specialized court of protection. Challenges of working from different cultural backgrounds shaped the labels and the definitions of the codes used. Subtle differences in languages and meanings of words were discussed and codes adapted to best fit both

Portuguese and English speakers. The resulting coding system offers a slightly different way of coding, and sensitive to the nuances of language in child forensic interviews that take place in multicultural environments.

While NICHD's developers use the codes *Invitation* and *Cued Invitation* to describe the most efficient free recall prompts, the current study labeled these codes differently because of translation issues and the need to capture their specific functions within the interview. *Narrative Invitation*—"*Convite à Narrativa*"—was also used to represent the less intrusive form of inviting a narrative by a free recall prompt (e.g., "tell me more"). *Focused Narrative Requests* "*Solicitações de Narrativa Focalizada*" addressed the actions of the interviewer to focus the child on what he/she just said (e.g. "tell me more about the trip to the zoo you just talked about"). Rather than the NICHD's code "*Directive*," we used "*WH-Question*" or "*Perguntas QOC*" to code the most focused free recall prompt, as this seemed a better choice for Brazilian-Portuguese interviewers. The coding schema also added three levels of Information Sharing (*Generic, Objective, Rules*) to address their specific functions within the interviews, while interviewers using the NICHD would simply code these as "Introductory Comments." The choices we made for labeling the questioning format appeared to improve multicultural knowledge of interviewers on how to probe children by providing them pieces of information they would recognize.

The most important finding was the effectiveness of *Facilitating Behaviors* for improving the CSA narrative. Use of this prompt shows the interviewer is following the child's narrative and may also shape the interviewer's behavior toward children who are willing to talk. This finding is consistent with studies describing this type of utterance as a way to engage children to provide free narratives (Evans, Roberts, Price, & Stefek, 2010). The findings were also consistent with the literature indicating that directive approaches are more common than admitted, even when interviewers are trained and considered to be following best practices (Lyon, Scurich, Choi, Handmaker, & Blank, 2012). Although the best practices in the literature recommends the use of free recall prompts to that of recognition memory prompts (Hershkowitz, Fisher, Lamb, & Horowitz, 2007; Lamb et al., 2009; Pipe, Orbach, Lamb, Abbott, & Stewart, 2013), the interviewers use of recognition memory prompts prevailed over the free recall utterances in the current study.

Forensic interviews are challenging conversations (Cordisco-Steele, 2012) expressed by a pattern of reluctance in disclosing relevant information. The fact that 89% of sample interviews involved sexual abuse by a family member may explain the non-collaborative responses of some children, prompting the interviewer to go right to the point, and ask more directive or focused questions. Sensitivity bias on the part of the interviewer may also explain the reluctance of the children to disclose information (Everson & Sandoval, 2011) as reflected in the results of the current study. The interviewers in the sample worked in a child and juvenile protective court and they may have been guided to ask focused or direct questions to avoid missing an abused child, but risking a higher number of false positive cases in the legal system.

Relationship Maintenance, one of the most frequent behaviors of the interviewers in the sample, surprisingly did not correlate with other variables. It is likely that it was not fine enough to properly discriminate the type of support that improves children's narrative. The specific *function* and *purpose* of that code could not capture the nuances of such utterances as "hello, nice to meet you!" which aims at starting the relationship building, or "I know that it is very difficult to talk about it", which may communicate empathy.

Child development stage may have shaped both the way the professionals interviewed and how children responded. This is consistent with literature showing the improvement in the quality of the narrative is a function of age (Lamb et al., 2008). Hewitt (2012) suggests more directive approaches for very young children are necessary given their developmental level. However, a directive approach should occur within the context of a broader assessment including observations of child and interviews with the caregiver.

Limitations

This study was not without its limitations. The relationships among codes and other variables apply only to the set of interviews used. Other samples may have different characteristics, and the results should not be generalized. Although the kappa statistic was calculated repeatedly for all codes during the first part of the study to develop the final interviewers' codes, kappa could not be used at the final stage due to feasibility and time constraints and is regarded as the main limitation of the study. The reliability of this coding system requires further investigation using a more controlled design, with a different set of interviews, and levels of training. Another major limitation was the use of only one researcher to code a total of 28,978 utterances that increased the chance for coding errors. Since the results describing the relationships among codes are correlational, causal inference cannot be established. Therefore, the outcome of this study is offered tentatively as hypothesis, for its heuristic value and for recommendations regarding further application and evaluation of this coding system in future research.

Implications and Conclusion

Previous attempts to code CSA interviews have focused on question format rather than the function of the utterances within the interviews. The presented coding system is theoretically and empirically grounded on concepts of free recall, recognition memory, funnel approach, and shows different levels of how informative the child's responses are. The proposed functional coding system can help the understanding of what the interviewer does and how informative the child response is. Refining some code subtypes in functional terms, such as in the case of *Relationship Maintenance*, may lead to a more useful system of coding CSA interviews. There is also the potential to analyze code sequences qualitatively and quantitatively to help unravel the interview process in a qualitative sequential analysis of paired interviewer–child codes.

Sexual abuse entraps children in a pathogenic relationship prejudicial to their full development. The justice systems often times are not prepared to absorb the complexities of the child's disclosure process which is usually affected by a pact of silence, secrecy, imprisonment in abusive relationship, denial and suggestibility (Cicchetti & Toth, 2005). This complexity poses challenges for all professionals responsible for assessing these cases and also for researchers attempting to refine techniques to help children tell their stories. This study holds relevance for the learning process and discoveries carried out by a group of researchers based in Brazil and the U.S. to create a functional system for coding CSA interviews.

Continuing research aimed at improving the use of the proposed coding system may result in a self-assessment and peer review tool to assist interviewers in training and the evaluation of their work by allowing them to choose more efficient strategies to achieve their goals. The literature indicates intensive training, immediate feedback, and peer review keep interviewers using best practices (Benson & Powell, 2015; Fisher & Geiselman, 2010). In the future, research may contribute to an appropriate balance between sensitivity and specificity in the evaluation of sexual abuse cases by identifying children who need protection from abuse, while avoiding the injustice of wrongly accusing some people as perpetrators of abuse. When interviewers and their supervisors, along with their peers, in peer review sessions, have the ability to systematically analyze their own work, they all become aware of what they are doing and what really works for each specific group of children. This creates conditions for improving adherence to what research shows as effective in forensic interviewing practice and also may advance the field of forensic interviewing eventually resulting in better outcomes for children families in child abuse cases.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Research Involving Human and Animal Participants This article does not contain any studies with human participants performed by any of the authors.

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