

The Effects of Repeated Interviewing on Children's Forensic Statements of Sexual Abuse

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SUMMARY

Multiple interviews with children alleging sexual abuse are not uncommon. Researchers expressed concern that repeated investigations may create and preserve inaccurate details. However, studies indicated that repeated open-ended interviews are not necessarily harmful and may have advantages. Forensic interviews were conducted with 40 children, alleged victims of sexual abuse, according to the NICHD investigative protocol. The children were re-interviewed after a short break. The information obtained in the second interview was almost 25% new. The first interview yielded a larger number of details, both central and peripheral, but the proportion of central details was larger in the second interview. The proportion of details repeated in both interviews was surprisingly low, and most of the original information was not included. Older children repeated more information than younger ones. The data suggest that a repeated forensic interview may elicit new information and preserve central details. Copyright © 2006 John Wiley & Sons, Ltd.

Multiple interviews with children alleging sexual abuse are not uncommon. Alleged victims are likely to go through more than 10 formal investigative interviews during the forensic process (Gray, 1993; McGough, 1993), and informal interviews with parents or friends are probably even more frequent. Laboratory experimental research has focused on the cognitive effects of repeated interviews with children in an attempt to understand the implications for repeated investigations with child eyewitnesses, for example victims of sexual abuse. To date no study has directly explored the effects of multiple investigations on children's forensic statements of sexual abuse. The present study explores the dynamics of repeated investigations with 40 children, alleged victims of sexual abuse.

The dynamics of repeated interviews was investigated mostly in suggestibility studies. These studies established that a combination of repeated interviews with leading, suggestive or coercive questions can cause serious harm to children's memory and increase the amount of false information in their reports (see Quas, Goodman, Ghetti, & Redlich, 2000). Researchers expressed concern that repeated interviews in forensic contexts may create and preserve inaccurate details, support wrong hypotheses and cause inconsistencies between the multiple statements (Warren & Lane, 1995). Therefore experts strongly recommended to decrease as much as possible the number of forensic interviews with children. However, when the effects of repeated interviews were separated from the effects of suggestive practices several studies showed that repeated interviews were not

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necessarily harmful and even had advantages (see Quas et al., 2000). In interviews relying on open-ended strategies, in which children provide free-recall statements on experienced events, multiple retrievals may strengthen the child's representation, ease the retrieval, elicit substantive additional new information (Baker-Ward, Gordon, Orenstein, Larus, & Clubb, 1993; Dent & Stephenson, 1979; Fivush & Hamond, 1989; Henry & Gudjonsson, 2003; Hudson & Fivush, 1991; Memon & Vartoukian, 1996; Peterson, Moores, & White, 2001; Pipe, Gee, Wilson, & Egerton, 1999; Salmon & Pipe, 1997, 2000), inoculate against forgetting (Warren & Lane, 1995) and increase the child's resistance to later suggestions (Brainerd & Orenstein, 1991; Dent & Stephenson, 1979; Goodman, Bottoms, Schwartz-Kenney, & Rudy, 1991; Warren & lane, 1995).

Studies of repeated interviewing explored largely two effects, commonly labelled reminiscence and hypermnnesia. Reminiscence refers to the emergence of new information over repeated interviews; hypermnnesia refers to the increase in the overall amount of information in the course of repeated interviews.

Several studies focusing on reminiscence in repeated interviews with children have examined the amount and accuracy of the additional new information obtained over multiple retrievals. Although new information that appears in later interviews may arouse suspicions that it was not part of the original representation (Myers, 1993; Salmon & Pipe, 1997), there is evidence that new details, retrieved by free recall, are quite accurate (Fivush & Hamond, 1990; Fivush & Shukat, 1995; Howe, O'Sullivan, & Marche, 1992; Hudson & Fivush, 1991; Peterson & Whalen, 2001). For example, La Rooy, Pipe, and Murray (2005) have reported that 92% of the new information obtained in a second interview 1 day after the initial one was accurate. These findings support the assumption that subjects do not necessarily provide complete statements in their first retrieval and that additional probing attempts might be fruitful (Memon & Vartoukian, 1996; Scrivner & Safer, 1988).

The studies found reminiscence even after long delays, and children provided new information in the course of repeated interviews after 5 or 6 years (Fivush, McDermott Sales, Goldberg, Bahrick, & Parker, 2004; Peterson & Whalen, 2001; Salmon & Pipe, 1997, 2000). However, long delays seem to adversely affect the accuracy of the new information (Peterson et al., 2001; Salmon & Pipe, 1997, 2000), but short delays do not have such an effect (La Rooy et al., 2005). The harmful effects of long delays on memory were attenuated when the first interview took place some time after the target event (6 months according to Pipe, Sutherland, Webster, Jones, & La Rooy, 2004) rather than immediately after it. Researchers separated central details describing the core of incidents from peripheral details describing their context and concluded that over long delays new peripheral details were more prone to inaccuracy than central ones (Peterson & Whalen, 2001; Roebbers & Schneider, 2000).

The consistency of the information obtained over multiple retrievals is another focus of research on repeated interviews. The proportion of details that tend to be consistently present in children's statements may be as low as 50% (Salmon & Pipe, 1997; Steward & Steward, 1996). After long delays children may repeat very small amounts of information (Fivush et al., 2004) and ignore or forget most of the original information. It has been clearly shown that at each memory search children tend to retrieve and report different details (Fivush & Shukat, 1995), maybe because each search is performed in a different context (Fivush et al., 2004). Age effects were evident when consistency of the report was examined (Ghetti, Goodman, Eisen, Qin, & Davis, 2002; Poole & White, 1995), with older children providing more consistent information than younger ones. However, cognitive abilities did not predict the consistency of children's reports (Ghetti et al., 2002).

Other studies explored hypermnesia and examined the overall amount of information over interviews. Hypermnesia occurs when the amount of ignored or forgotten information does not exceed the amount of newly recalled information. Theoretically, a repeated retrieval following an initial one can elicit additional information because previously used cues may be more effective and ease accessibility of the target information and because the initial interview helped reintegrate the memory traces (Brainerd & Orenstein, 1991; Brainerd, Reyna, Howe, & Kingma, 1990). However, hypermnesia was not always evident in studies of children's memory of experienced events and was only observed in a few studies (Dent & Stephenson, 1979; Henry & Gudjonsson, 2003; La Rooy et al., 2005), especially when children were interviewed repeatedly using open-ended questions and over short delays.

Most studies investigating the effects of repeated interviews were conducted in a laboratory or analogous contexts and attempted to draw implications for forensic investigations. Because of the limited ecological validity of analogue studies, direct examinations of the value of repeated interviews in a forensic context are needed.

One study conducted in a forensic context (Hershkowitz et al., 1998) performed a field manipulation of repeated investigations with children who were alleged victims of sexual abuse. In this study, 50 children between the ages of 4 and 12 years were first interviewed in the investigator's office and following a short break they were taken to the scene of the alleged crime where they were re-interviewed. To ensure reliance on open-ended strategies, the forensic investigators were trained to use the NICHD (National Institute of Child Health and Human Development) interview protocol. The researchers expected a positive effect on children's memory of the contextual cues obtained in the second interview at the scene of the crime. The children provided in average 30% new information in the second interview; older children benefited more than younger ones. In that study, the effects of repeated interviews were not separated from those of the physical context reinstatement, which made the findings difficult to interpret. To eliminate other sources of effects and focus on the effects of repeated interviews, in the current study both interviews were conducted in the investigator's office.

As the use of open-ended techniques was shown as a condition for optimising the effects of repeated interviews, experienced forensic investigators performed the interviews with adherence to the NICHD interview protocol, known to enhance reliance on open-ended prompts. Based on indications of the positive effect of short delays on the accuracy of the new information obtained, a 30-minute break was used after the first interview. Short delays are crucial in real-life investigations because they permit to keep children in the investigation office and avoid their exposure to external information between the interviews.

Our prediction was that a second interview will elicit new information from the children about their experiences of sexual abuse but preserve only part of the information provided in the first interview. Consequently, we did not expect hypermnesia. We also hypothesised that central details will appear more consistently over interviews than peripheral details. Because of their lower attention span, young children's performance in the second interview was expected to be lower than that of older children, resulting in a smaller amount of information.

METHOD

Forensic interviews were conducted by Israeli child investigators with 40 alleged victims of sexual abuse, aging 6–13 years. The children were included in the study if the alleged

crimes involved a single event of sexual abuse by an extra-familial suspect. No other inclusion criteria were used, and the children interviewed were the first 40 children during the data collection period to be referred to the Child Investigation Unit. The same investigator performed both interviews of each child. Twenty-two interviewers performed between 1 and 6 interviews each (13 interviewers performed 1 interview, 4 interviewers performed 2, 3 interviewers performed 3, 1 interviewer performed 4 and 1 interviewer performed 6 interviews). Permission to perform this study was provided by the management of the Ministry of Labor and Welfare in Israel, subject to strict limitations regarding the privacy of the victims, suspects or witnesses involved. Allegations consisted of sexual exposure ($N = 12$), sexual touch over clothes ($N = 14$) and sexual touch under clothes (including penetration, $N = 14$). Most suspects were strangers ($N = 30$); the others were familiar to the child ($N = 10$). All interviews tightly followed the NICHD investigative protocol. At the end of the first interview, children were told that they would be re-interviewed following a break, given drawing tools, and allowed to draw for 30 minutes. Then they were asked to tell again everything that happened to them as if they had not done so before. The second interview started with a free-recall substantive phase (see below).

The NICHD investigative protocol

The NICHD investigative protocol is a fully structured protocol that covers all the phases of the investigative interview (for a full description see Orbach et al., 2000). In the introductory phase, the interviewer introduces him/herself, clarifies the child's task (the need to describe events in detail and to tell the truth), and explains the ground rules and expectations (i.e. that the child can say 'I don't remember', 'I don't know', 'I don't understand', and correct the interviewer).

The *rapport-building phase* comprises two sections. The first one is a structured open-ended section designed to create a relaxed, supportive environment for children and to establish a rapport between the child and the interviewer. In the second section, children are prompted to describe a recently experienced neutral event in detail. This training in the pre-substantive phase of the interview is intended to simulate the open-ended investigative strategies and techniques used in the substantive phase and the related pattern of interaction between interviewers and children, while demonstrating to children the specific level of detail expected.

In a *transitional phase* between the pre-substantive and the substantive parts of the interview a series of prompts are used to identify the target events to be investigated. Presented in two versions, the first prompt asks the child either: 'Do you know why you came to see me today?' or 'Tell me the reason you came to talk with me today'. The interviewer moves on to some carefully scripted but more focused prompts (in sequence) only if the child fails to identify the target events.

The *free recall phase* comprises three forms of open-ended utterances: the main invitation ('Tell me everything that happened from the beginning to the end as best you can remember'), follow-up invitations ('Then what happened?' 'Tell me more about that'), and cued invitations ('Earlier you mentioned a person/object/action; tell me everything about that') aimed at eliciting spontaneous accounts of the alleged incidents from free-recall memory.

As soon as the first narrative is completed, the interviewer determines whether the incident occurred 'one time or more than one time' and proceeds to secure incident-specific information from free-recall memory by the use of open-ended utterances.

Only after the open-ended questioning has been exhausted, interviewers may proceed to directive questions, which address details previously mentioned by the child. For example, the interviewer might ask 'How did he use the stick?' following the child's claim that the suspect did so. If crucial details are still missing at the end of the interview, interviewer may ask limited option-posing questions. These are mostly yes/no recognition questions about new details that the child failed to address previously, such as 'Did he touch any part of his body when he was talking to you?' Suggestive utterances that communicate to the child what response is expected ('At that time he was laying on top of you, wasn't he?') are strongly discouraged in all phases of the interview.

Data coding

Audio tape recordings of the interviews were transcribed and checked to ensure their completeness and accuracy. Two raters classified the interviewers' utterance types into open-ended, directive, option-posing, or suggestive, as defined above. In most analyses the directive, option-posing and suggestive utterances were collapsed into a larger category of focused utterances. Utterances that do not address the alleged events were coded as non-substantive.

The raters also tabulated the number of details conveyed in the child's statement using a technique first developed by Yuille and Cutshall (1986, 1989) and elaborated by Lamb et al. (1996). Details were defined as words or phrases identifying or describing individuals, objects or events (including actions) related to the investigated incident or to its disclosure. Details were counted only when they were new and added to the understanding of the target incidents and their disclosure. Details were considered central when they pertained to the alleged event in so crucial a fashion that their absence would change the plot (e.g. the fact that the suspect's jeans had to be unbuttoned). By contrast, peripheral or non-central details described aspects of the alleged event that were not integral to the plot (e.g. the colour of the suspect's clothing), although they were still related to the incident. Before coding the transcripts, the raters were trained on an independent set of transcripts until they agreed on the identification of at least 90% of the utterances and 90% of the details. Twenty per cent of the transcripts were independently coded by both coders to ensure that they remained reliable. For further details about the coding categories and rules see Lamb et al. (1996) and Orbach et al. (2000).

RESULTS

The following dependent measures were performed on the coded data: total number of details obtained in each interview, number of new details obtained in the second interview, number of consistent details over both interviews and number of details that appeared in the first interview but were omitted in the second one. For each measure we examined the type of details (central/peripheral) and the type of utterance eliciting the details (open ended/focused). Children were divided into two age groups by median age: 6–10 year olds ($N = 19$) and 11–13 year olds ($N = 21$). Within-subject ANOVAs were used to explore the effects of detail type, utterance type and age on the dependent measures. Additional

within-subject *t*-tests were used to compare the ratio of central details obtained in the two interviews.

Interview quality

A larger number of utterances was directed at the children in the first interview ($M = 58.90$; $SD = 29.14$) than in the second one ($M = 37.85$; $SD = 21.05$; $t(34) = -6.13$; $p < 0.0001$). In both interviews, interviewers relied extensively on open-ended utterances, which formed almost half the utterances in the first interview ($M = 0.47$; $SD = 0.15$) and over half ($M = 0.56$; $SD = 0.17$) the utterances in the second interview (Table 1). The corresponding rates were $M = 0.37$ ($SD = 0.13$) and $M = 0.30$ ($SD = 0.14$) for directive utterances, $M = 0.10$ ($SD = 0.06$) and $M = 0.10$ ($SD = 0.06$) for option-posing utterances, $M = 0.02$ ($SD = 0.02$) and $M = 0.01$ ($SD = 0.02$) for suggestive utterances and $M = 0.02$ ($SD = 0.03$) and $M = 0.01$ ($SD = 0.02$) for non-substantive utterances.

A 2 (interview: first, second) \times 5 (type of utterance: open-ended, directive, option-posing, suggestive, non-substantive) \times 2 (age group: younger, older) within-subject ANOVA revealed a main effect of the utterance type ($F(1,38) = 974.67$; $p < 0.001$) on the frequency of utterances, as well as a significant interaction between the interview and utterance type ($F(1,38) = 4.30$; $p < 0.01$). Univariate within-subject tests indicated that the most common utterance posed by interviewers was the open-ended one, followed by directive, option-posing, and suggestive or non-substantive utterances; no differences were found in the frequency of suggestive and non-substantive utterances.

Additional univariate tests comparing both interviews revealed that the second interview contained more open-ended, and fewer directive and non-substantive utterances than the first interview.

Total number of details obtained in each interview

A comparison of the amount of information provided in response to the average utterance in the first and second interviews revealed that both interviews yielded similar numbers of details. But because a larger number of utterances were directed at the children in the first interview, it yielded a greater number of details ($M = 318.02$; $SD = 202.10$), both central

Table 1. Proportion of utterance types in the first and second interviews

	Mean	SD
First interview		
Open-ended utterances	0.4727	0.15124
Directive utterances	0.3773	0.13899
Option-posing utterances	0.1081	0.06847
Suggestive utterances	0.0208	0.02859
Non-substantive utterances	0.0206	0.03332
Second interview		
Open-ended utterances	0.5602	0.17716
Directive utterances	0.3070	0.14245
Option-posing utterances	0.1023	0.06559
Suggestive utterances	0.0184	0.03170
Non-substantive utterances	0.0100	0.02666

Table 2. Comparison of the number of details produced in the first and second interviews

Measures	Raw numbers		Ratios ^a	
	Mean	SD	Mean	SD
First interview				
Total number of details	318.02	202.10		
Total number of central details	208.95	147.76		
Total number of peripheral details	109.07	83.60		
Second interview				
Total number of details	190.62	136.98	0.59	0.22
Total number of central details	129.70	87.51	0.40	0.17
Total number of peripheral details	60.92	64.96	0.19	0.14
Total number of new details	74.95	71.84	0.23	0.16
Number of central new details	44.87	44.85	0.14	0.11
Number of peripheral new details	30.08	36.99	0.09	0.09
Total number of repeated details	115.67	78.62	0.36	0.10
Number of repeated central details	84.83	53.62	0.26	0.09
Number of repeated peripheral details	30.84	35.06	0.09	0.07
Total number of omitted details	202.35	140.39	0.63	0.10
Number of omitted central details	124.12	108.04	0.39	0.14
Number of omitted peripheral details	78.23	57.44	0.24	0.18

^aAll ratios are computed based on the total number of details in the first interview.

($M = 208.95$; $SD = 147.76$) and peripheral ($M = 109.07$; $SD = 83.60$), than the second interview ($M = 190.62$; $SD = 136.98$, $M = 129.70$; $SD = 87.51$, $M = 59.92$; $SD = 64.96$; see Table 2).

The first interview also yielded a larger number of details following open-ended invitations ($M = 226.22$; $SD = 152.26$), both central ($M = 150.50$; $SD = 111.33$) and peripheral ($M = 75.72$; $SD = 65.83$), than the second interview ($M = 148.02$; $SD = 110.81$, $M = 104.60$; $SD = 74.46$, $M = 43.42$; $SD = 49.37$; Table 3).

A 2 (interview: first, second) \times 2 (type of utterance: open-ended, focused) \times 2 (type of details: central, peripheral) \times 2 (age group: younger, older) within-subject ANOVA revealed main effects for the interview ($F(1,38) = 36.58$; $p < 0.001$), for the utterance type ($F(1,38) = 61.18$; $p < 0.001$) and for the detail type ($F(1,38) = 29.63$; $p < 0.001$) on the number of details obtained, as well as significant interactions between the interview and utterance type ($F(1,38) = 8.11$; $p < 0.01$), between the utterance type and detail type ($F(1,38) = 22.32$; $p < 0.01$) and between the utterance type, detail type and age ($F(1,38) = 3.91$; $p < 0.05$). More details were obtained in the first than in the second interview, from open-ended than from focused utterances, and of central than of peripheral nature. The decrease in the number of details from the first to the second interview was greater for details from focused than for details from open-ended utterances. While both types of utterance yielded more central than peripheral details, the difference was larger for open-ended than for focused utterances. Finally, in response to open-ended utterances, older children provided more central details than did the younger ones, but no age differences were manifest in the number of central details that followed focused utterances or in the number of peripheral details from both types of utterance.

A comparison of the proportion of central details in the two interviews revealed that this was higher in the second ($M = 0.69$; $SD = 0.17$) than in the first interview ($M = 0.65$; $SD = 0.17$; $t(39) = -2.70$; $p < 0.01$).

Table 3. Comparison of the number of details elicited by open-ended utterances in the first and second interviews

Measures	Raw numbers		Ratios ^a	
	Mean	SD	Mean	SD
First interview				
Total number of details	226.22	152.26		
Total number of central details	150.50	111.33		
Total number of peripheral details	75.72	65.83		
Second interview				
Total number of details	148.02	110.81	0.65	0.26
Total number of central details	104.60	74.46	0.46	0.19
Total number of peripheral details	43.42	49.37	0.19	0.15
Total number of new details	51.90	53.83	0.22	0.16
Number of central new details	30.27	34.74	0.13	0.10
Number of peripheral new details	21.63	26.87	0.09	0.10
Total number of repeated details	96.07	69.12	0.42	0.16
Number of repeated central details	71.77	50.06	0.31	0.14
Number of repeated peripheral details	24.30	28.69	0.10	0.08
Total number of omitted details	130.15	101.03	0.57	0.16
Number of omitted central details	78.73	77.00	0.34	0.20
Number of omitted peripheral details	51.42	45.88	0.22	0.14

^aAll ratios are computed based on the total number of details in the first interview.

New details obtained in the second interview

An average of 74.95 new details ($SD = 71.84$) was obtained in the second interview, representing an addition of 23.56% ($SD = 16.17$) to the details obtained in the first interview (Table 2). Of the additional details, 44.87 ($SD = 46.86$) or 14.10% ($SD = 11.32$) were central and 30.08 ($SD = 36.99$) or 9.45% ($SD = 09.80$) were peripheral. Table 3 focuses on details following open-ended utterances and shows an addition of 51.90 ($SD = 53.83$) new details or 22.94% ($SD = 16.71$) obtained in the second interview. Of those, 30.27 ($SD = 34.74$) or 13.38% ($SD = 10.91$) were central and 21.63 ($SD = 26.87$) or 9.56% ($SD = 10.10$) peripheral.

A 2 (type of utterance: open-ended, focused) \times 2 (type of details: central, peripheral) \times 2 (age group: younger, older) within-subject ANOVA revealed a significant main effect for the type of utterance ($F(1,38) = 18.57$; $p < 0.001$), as well as a near-significant main effect for the type of details ($F(1,38) = 3.55$; $p = 0.06$) on the number of new details obtained in the second interview. Children provided more new details in response to open-ended utterances than to focused utterances and non-significantly more central than peripheral additional details in the second interview.

Consistent details in the course of both interviews

An average of 115.67 ($SD = 78.62$) details or 36.370% ($SD = 10.92$) were mentioned in the first interview and repeated in the second one (Table 2). Of these, 84.83 ($SD = 53.62$) or 26.67% ($SD = 09.99$) were central and 30.84 ($SD = 35.06$) or 9.69% ($SD = 7.08$) peripheral. Following open-ended utterances, an average of 96.07 ($SD = 69.13$) details or

42.46% ($SD = 16.63$) were repeated in the second interview (Table 3). Of these, 71.77 ($SD = 50.06$) or 31.72% ($SD = 149.74$) were central and 24.30 ($SD = 28.69$) or 10.74% ($SD = 8.49$) peripheral.

A 2 (type of utterance: open-ended, focused) \times 2 (type of details: central, peripheral) \times 2 (age group: younger, older) within-subject ANOVA revealed significant main effects for the type of utterance ($F(1,38) = 66.40$; $p < 0.001$) and for the type of details ($F(1,38) = 55.75$; $p < 0.05$) on the number of old details repeatedly mentioned in the second interview, as well as an interactive effect between both factors ($F(1,38) = 39.52$; $p < 0.001$). In both interviews more details were provided following open-ended utterances and more of the details were central. Both types of utterance yielded more central than peripheral repeated details, but the difference was more remarkable for open-ended utterances.

In addition, age interacted with type of detail ($F(1,38) = 6.19$; $p < 0.01$) and with type of detail and type of utterance ($F(1,38) = 5.26$; $p < 0.05$). Older children repeated more central details and less peripheral details than younger ones; this difference was more remarkable when details followed open-ended utterances.

The proportion of central details preserved over interviews was higher ($M = 0.75$; $SD = 0.15$) than the proportion of central details in the first interview ($M = 0.65$; $SD = 0.17$; $t(39) = -6.29$; $p < 0.001$).

Details omitted in the second interview

As shown in Table 2, an average of 202.35 ($SD = 140.39$) details, or 65.43% (10.92) were mentioned in the first interview but omitted in the second one. Of these, 124.12 ($SD = 108.04$) or 39.02% ($SD = 14.41$) were central and 78.23 ($SD = 57.44$) or 24.59% ($SD = 18.63$) were peripheral. Of the details elicited by open-ended utterances that appeared in the first interview, 130.15 ($SD = 101.03$) were omitted in the second interview, representing 57.53% ($SD = 16.63$) (Table 3). Of these, 78.73 ($SD = 77.00$) details or 34.80% ($SD = 20.79$) were central and 51.42 ($SD = 45.88$) details or 22.73% ($SD = 14.36$) peripheral.

A 2 (type of utterance: open-ended, focused) \times 2 (type of details: central, peripheral) \times 2 (age group: younger, older) within-subject ANOVA revealed significant main effects for the type of utterance ($F(1,38) = 22.41$; $p < 0.001$) and for the type of detail ($F(1,38) = 9.11$; $p < 0.01$) on the number of details mentioned in the first but ignored in the second interview. More details following open-ended utterances and more central details were ignored in the second interview.

The proportion of central details omitted in the second interview was lower ($M = 0.59$; $SD = 0.22$) than the proportion of central details in the first interview ($M = 0.65$; $SD = 0.17$; $t(39) = 0.4.82$; $p < 0.001$).

DISCUSSION

Our data suggest that a repeated forensic interview has two important advantages in obtaining children's testimony: first, a substantive amount of forensically relevant information was added to the children's statements and second, statements provided in the second interview consisted of higher ratios of central than of peripheral details.

The evidence that new information was obtained in a repeated interview with children supports the observation that subjects do not necessarily provide complete statements in their first retrieval and that additional searching attempts can be effective (Memon & Vartoukian, 1996; Scrivner & Safer, 1988). It is possible that the first retrieval functions as context reinstatement providing additional cues for the subsequent search (Tizzard-Drover & Peterson, 2004). Additional cueing is not necessarily limited to a second attempt, and there is evidence that children continue to retrieve new information even in the course of three, four, or more interviews (Peterson, 1999).

Similar findings were described in previous studies focusing on children's memory of experienced events (Fivush & Hamond, 1990; Fivush & Shukat, 1995; Howe et al., 1992; Hudson & Fivush, 1991; Peterson & Whalen, 2001; La Rooy et al., 2005). But whereas those studies were of laboratory or field analogue nature, the current study is ecologically valid and addresses directly the applied value of repeated interviews in forensic settings.

It is noteworthy that the second interview investigated in this study was not performed because the first one was incomplete, as it can happen in forensic investigations and would account for the additional information retrieved in the second interview. The second interview was part of a planned procedure following a complete first interview, suggesting that a second retrieval is likely to be of value in any child investigation. Given that children have less developed retrieval strategies than adults and often provide incomplete accounts of their experiences (Poole & Lamb, 1998), re-interviewing appears to be an effective procedure for enriching the testimony obtained from children. An elaborated forensic account is especially crucial in the investigation of child sexual abuse crimes, in which children are often the only or main witnesses, and other sources of information about the crimes are limited (Poole & Lamb, 1998).

In the current study we were not able to employ measures of accuracy because of the absence of criminal records. Previous research indicated that the positive effects of repeated interviews were especially conspicuous when open-ended interviewing was involved and that the accuracy of the new information was satisfying, given that children had produced it by free recall (see Quas et al., 2000). In our study, interviews performed with adherence to the NICHD child investigative protocol resulted in high investigator reliance on free-recall strategies in both interviews. Open-ended utterances formed over half the prompts; together with directive utterances they formed over 85% of the prompts. This suggests that the overall quality of the information, and specifically the additional information obtained in the second interview, was generally high.

Our study avoided long delays that can compromise the quality of the information. Previous studies showed that delay between the incident/first retrieval and the repeated one might be a risk factor for inaccuracy of the later statement (Peterson et al., 2001; Salmon & Pipe, 1997, 2000). In our study the second interviews were performed after a very short delay. It seems that immediate re-interviewing as a forensic procedure provides the advantages of reminiscence while reducing the risks for inaccuracy, as demonstrated by La Rooy et al. (2005).

The second benefit of the repeated interviews was that they resulted in better organised statements with higher proportions of central details. Central details describe the core of the sexual abuse events (i.e. sexual actions or objects) and are of more direct relevance to the criminal allegation than peripheral details describing aspects of the context.

New central details obtained in a second interview are also more likely to be accurate than new peripheral details (Peterson & Whalen, 2001; Roebbers & Schneider, 2000), which adds to the value of re-interviewing. Some claimed that the first interview has a

consolidating effect on the children's memory (Brainerd & Orenstein, 1991; Brainerd et al., 1990), but this effect seems to be differential and to preserve more of the central and less of the peripheral details.

The amount of information repeated in the second statement was especially low and consisted of only 37%. Researchers have reported low proportions of repeated details over interviews but they attributed it mainly to forgetting over long delays (Fivush et al., 2004; Salmon & Pipe, 1997; Steward & Steward, 1996). Given that in our study the interval between interviews was very short, it is unlikely that forgetting has occurred. It is more probable that after the children retrieved extensive memory in the course of the first interview, they strategically selected the parts they repeated in the second interview and omitted the other parts. Several factors may have influenced this process. First, as mentioned before, in the second retrieval children emphasised the central parts of the events omitting larger portions of the peripheral ones. An inspection of the central/peripheral ratios of repeated information reveals that the repeated details reached almost a 3:1 ratio of central to peripheral details, compared with an almost 2:1 ratio in the first interview. This ratio indicates that the omitted details were mainly peripheral and implies that the children's processing of the information in the second interview was more meaningful and effective. It is possible that the reduced retrieval efforts invested in the second interview were replaced by efforts distinguishing central from peripheral details and focusing on the production of relevant information.

Second, the low number of repeated details can be related to the lower number of questions posed in the second interview, as suggested earlier by Ghetti et al. (2002). The second interview was shorter than the first one, contained fewer prompts, and was obviously not exhaustive. After performing the interviews, investigators shared with the authors their observation that two consecutive interviews were difficult for the children, and that as a result investigators limited their questioning in the second interview because children showed signs of fatigue and difficulty focusing their attention. Investigators also reported that the children were sometimes unresponsive when asked to repeat information they supplied in the first interview, providing responses such as 'you know that' or 'I already told you'. The children's reluctance is probably related to immediate re-interviewing, but results may have been different had another interviewer carried out the second interview.

The interviewers' strategies in managing the investigation and the children's cognitive difficulties may explain why children in our sample repeated small amounts of information in their second interview, obscuring potential hypermnesia. In previous studies, hypermnesia manifested more consistently when the request for information addressed to the subjects was the same in the initial and repeated interviews (Henkel, 2004; Kern, Libkuman, & Otani, 2002; La Rooy et al., 2005). In our study the number of prompts addressed to the children was lower in the second interview, although the children's average response in the second interview was not less informative than in the first. This finding suggests that the absence of hypermnesia was strongly affected by the lower request for information in the second interview. Within the context of investigations, the amount of accumulated information is of significance, and the second statement usually does not replace the first one but rather adds to it. Therefore the occurrence of reminiscence as demonstrated in this study may be more important than the occurrence of hypermnesia.

The dynamics of repeated interviews was similar for children in the two age groups, and both younger and older children provided similar amounts of additional information in the second interview. This finding emphasises the potential of repeated interviews to enhance

the testimony of child witnesses regardless of age. However, as predicted, the amount of preserved information across interviews differed in the two age groups, with older children repeating more information than younger children. Similar age effects on the consistency of the information across interviews were reported previously (Ghetti et al., 2002; Poole & White, 1995), and they support the observation that older children's reports are more consistent than those of younger children.

In conclusion, re-interviewing in child abuse investigations can be an effective tool for enhancing the amount of high-quality forensic information. The emergence of new information in a second interview and omission of original information in the course of repeated investigations seem to be characteristics of repeated retrieval and should not discredit the child's credibility.

REFERENCES

- Baker-Ward, L., Gordon, B. N., Ornstein, P. A., Larus, D. M., & Clubb, P. A. (1993). Young children's long-term retention of a pediatric examination. *Child Development, 64*, 1519–1533.
- Brainerd, C. J., & Orenstein, P. A. (1991). Children's memory for witnessed events: The developmental backdrop. In J. Doris (Ed.), *The suggestibility of children's recollections* (pp. 10–20). Washington, DC: American Psychological Association.
- Brainerd, C. J., Reyna, V. F., Howe, M. L., & Kingma, J. (1990). The development of forgetting and reminiscence. *Monographs of the Society for Research in Child Development, 55*, Serial No. 222.
- Dent, H. R., & Stephenson, G. M. (1979). An experimental study of the effectiveness of different techniques of questioning child witnesses. *British Journal of Social and Clinical Psychology, 18*, 41–51.
- Fivush, R., & Hamond, N. R. (1989). Time and again: The effects of repetition and retention interval on 2 year olds' recall. *Journal of Experimental Child Psychology, 47*, 259–273.
- Fivush, R., & Hamond, N. R. (1990). Autobiographical memory across the preschool years: Toward reconceptualizing childhood amnesia. In R. Fivush, & J. A. Hudson (Eds.), *Knowing and remembering in young children* (pp. 223–248). New York: Cambridge University Press.
- Fivush, R., McDermott Sales, J., Goldberg, A., Bahrick, L., & Parker, J. (2004). Weathering the storm: Children's long term recall of Hurricane Andrew. *Memory, 12*, 104–118.
- Fivush, R., & Shukat, J. R. (1995). Content, consistency, and coherence of early autobiographical recall. In M. S. Zaragoza, J. R. Graham, G. C. N. Hall, R. Hirschman, & Y. S. Ben-Porath (Eds.), *Memory and testimony in the child witness* (pp. 5–23). Thousand Oaks, CA: Sage.
- Ghetti, S., Goodman, G. S., Eisen, M. L., Qin, J., & Davis, S. L. (2002). Consistency in children's reports of sexual and physical abuse. *Child Abuse and Neglect, 26*, 977–995.
- Goodman, G. S., Bottoms, B. L., Schwartz-Kenney, B., & Rudy, L. (1991). Children's memory for a stressful event: Improving children's reports. *Journal of Narrative and Life History, 1*, 69–99.
- Gray, E. (1993). *Unequal justice: The prosecution of child sexual abuse*. New York: Free Press.
- Henkel, L. A. (2004). Erroneous memories arising from repeated attempts to remember. *Journal of Memory and Language, 50*, 26–46.
- Henry, L. A., & Gudjonsson, G. H. (2003). Eyewitness memory, suggestibility, and repeated sessions in children with mild and moderate intellectual disabilities. *Law and Human Behavior, 27*, 481–505.
- Hershkowitz, I., Orbach, Y., Lamb, M. E., Sternberg, K. J., Horowitz, D., & Hovav, M. (1998). Visiting the scene of the crime: Effects on children's recall of alleged abuse. *Legal and Criminological Psychology, 3*, 195–207.
- Howe, M. L., O'Sullivan, J. T., & Marche, T. A. (1992). Toward a theory of the development of long term retention. In M. L. Howe, C. J. Brainerd, & V. F. Reyna (Eds.), *Development of long-term retention* (pp. 245–255). New York: Springer-Verlag.
- Hudson, J. A., & Fivush, R. (1991). As time goes by: Sixth graders remember a kindergarten event. *Applied Cognitive Psychology, 5*, 60–346.

- Kern, R. P., Libkuman, T. M., & Otani, H. (2002). Memory for negatively arousing and neutral pictorial stimuli using a repeated testing paradigm. *Cognition and Emotion, 16*, 749–767.
- Lamb, M. E., Hershkowitz, I., Sternberg, K. J., Esplin, P. W., Hovav, M., Manor, T., & Yudilevitch, L. (1996). Effects of investigative utterance types on Israeli children's responses. *International Journal of Behavioral Development, 19*, 627–637.
- La Rooy, D., Pipe, M. E., & Murray, J. E. (2005). Reminiscence and hypermnnesia in children's eyewitness memory. *Journal of Experimental Child Psychology, 90*, 235–254.
- McGough, L. (1993). *Fragile voices: The child witness in American courts*. New Haven, CT: Yale University Press.
- Memon, A., & Vartoukian, R. (1996). The effects of repeated questioning on young children's eyewitness testimony. *British Journal of Psychology, 87*, 403–416.
- Myers, J. E. B. (1993). The competence of young children to testify in legal proceedings. *Behavioural Sciences & The Law, 11*, 121–133.
- Orbach, Y., Hershkowitz, I., Lamb, M. E., Sternberg, K. J., Esplin, P. W., & Horowitz, D. (2000). Assessing the value of investigative protocols. *Child Abuse and Neglect, 24*, 733–752.
- Peterson, C. (1999). Children's memory for medical emergencies: 2 years later. *Developmental Psychology, 35*, 1493–1506.
- Peterson, C., Moores, L., & White, G. (2001). Recounting the same events again and again: Children's Consistency across multiple interviews. *Applied Cognitive Psychology, 15*, 353–371.
- Peterson, C., & Whalen, N. (2001). Five years later: Children's memory for medical emergencies. *Applied Cognitive Psychology, 15*, 7–24.
- Pipe, M. E., Gee, S., Wilson, J. C., & Egerton, J. M. (1999). Children's recall 1 or 2 years after an event. *Developmental Psychology, 15*, 7–24.
- Pipe, M. E., Sutherland, R., Webster, N., Jones, C. H., & La Rooy, D. (2004). Do early interviews effect children's long term recall? *Applied Cognitive Psychology, 18*, 823–839.
- Poole, D. A., & Lamb, M. E. (1998). *Investigative interviews of children: A guide for helping professionals*. Washington, DC: American Psychological Association.
- Poole, D. A., & White, L. T. (1995). Tell me again and again: Stability and change in the repeated testimonies of children and adults. In M. Zaragoza, J. Graham, G. Hall, R. Hirshman, & Y. Ben-Porath (Eds.), *Memory and testimony in the child witness* (pp. 24–43). Thousand Oaks, CA: Sage.
- Quas, J. A., Goodman, G. S., Ghetti, S., & Redlich, A. (2000). Questioning the child witness; What can we conclude from the research thus far? *Trauma, Violence, & Abuse, 1*, 223–249.
- Roebers, C. M., & Schneider, W. (2000). The impact of misleading questions on eyewitness memory in children and adults. *Applied Cognitive Psychology, 14*, 509–526.
- Salmon, K., & Pipe, M.-E. (1997). Providing props to facilitate young children's event recall: The impact of a one year delay. *Journal of Experimental Child Psychology, 65*, 261–292.
- Salmon, K., & Pipe, M. E. (2000). Recalling an event one year later: The impact of props, drawing, and a prior interview. *Applied Cognitive Psychology, 14*, 99–120.
- Scrivner, E., & Safer, M. A. (1988). Eyewitnesses show hypermnnesia for details about a violent event. *Journal of Applied Psychology, 73*, 371–377.
- Steward, M. S., & Steward, D. S. (1996). Interviewing young children about body touch and handling. *Monographs of the Society for Research in Child Development, 61* (4-5, Serial number 248).
- Tizzard-Drover, T., & Peterson, C. (2004). The influence of an early interview on long term recall: A comparative analysis. *Applied Cognitive Psychology, 18*, 727–743.
- Warren, A. R., & Lane, P. (1995). Effects of timing and type of questioning on eyewitness accuracy and suggestibility. In M. S. Zaragoza, J. R. Graham, G. C. N. Hall, R. Hirschman, & Y. S. Ben-Porath (Eds.), *Memory and testimony in the child witness*. Thousand Oaks, CA, USA: Sage Publications.
- Yuille, J. C., & Cutshall, J. L. (1986). A case study of eyewitness memory of a crime. *Journal of Applied Psychology, 71*, 291–301.
- Yuille, J. C., & Cutshall, J. (1989). Analysis of the statements of victims, witnesses and suspects. In J. C. Yuille (Ed.), *Credibility assessment* (pp. 175–191). New York: Kluwer Academic/Plenum Publishers.

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