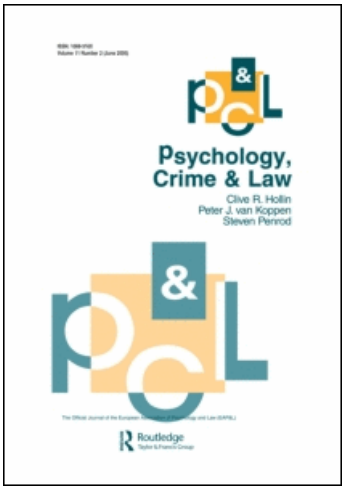

Psychology, Crime & Law
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713647155

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First published on: 22 June 2011

To cite this Article Otgaar, Henry , Horselenberg, Robert , van Kampen, Ris and Lalleman, Karina(2011) 'Clothed and unclothed human figure drawings lead to more correct and incorrect reports of touch in children', Psychology, Crime & Law,, First published on: 22 June 2011 (iFirst)
To link to this Article: DOI: 10.1080/1068316X.2010.532129
URL: http://dx.doi.org/10.1080/1068316X.2010.532129

Psychology, Crime & Law
2011, 1–13, iFirst

Clothed and unclothed human figure drawings lead to more correct and incorrect reports of touch in children

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(*Received 29 June 2010; final version received 20 September 2010*)

The purpose of the current study was to examine the effect of clothed and unclothed human figure drawings (HFDs) on children's reports of touch. Eighty 4/5-year-olds and 80 9/10-year-olds participated in a staged event in which measurements of their body parts (e.g. waistline) were taken. Specifically, they were touched on 10 different locations. Immediately or three weeks after the event, they had to report where they had been touched. Half of the children received a clothed HFD while the other half was provided with an unclothed HFD to assist children in their recall. When we compared children's recall before and after the presentation of a HFD, we found that clothed and unclothed HFDs significantly decreased the accuracy of children's reports of touch. So, although children reported more correct touches after the presentation of a HFD, they were also more likely to include more incorrect information in their reports of touch.

Keywords: children; memory; human figure drawing; accuracy

Introduction

Over the past decades, child sexual abuse cases have spurred memory scholars and mental health professionals to examine how to improve the reliability of children's memory reports. As children often fail to disclose their sexual abuse experiences (e.g. Sjöberg & Lindblad, 2002), researchers and clinicians have begun to employ nonverbal aids (i.e. anatomically detailed (AD) dolls, human figure drawings (HFDs)) to assist children in their event recall (see Melinder et al., 2010). The rationale behind these nonverbal tools is that they would help children in describing embarrassing and shameful experiences and in providing the necessary retrieval cues for their event descriptions (Boat & Everson, 1988; Bruck, Ceci, & Francoeur, 2000). Furthermore, such tools are less dependent on verbalization capacities, which make them particularly appropriate for interviewing young children whose vocabulary skills have not completely developed (Everson & Boat, 1994).

AD dolls are often employed by professionals. The use of AD dolls to facilitate the completeness and accuracy of children's accounts of alleged sexual abuse is, however, highly controversial. Some researchers (e.g. Koocher, Goodman, White, Friedrich, Sivan, & Reynolds, 1995) found that AD dolls have the potential to

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ISSN 1068-316X print/ISSN 1477-2744

DOI: 10.1080/1068316X.2010.532129
http://www.informaworld.com

support children's retrieval of events. Other authors (e.g. Bruck et al., 2000; Bruck, Ceci, Francoeur, & Renick, 1995), on the other hand, asserted that AD dolls exacerbate children's reports because they are extremely suggestive and, hence, lead children to make commission errors about sexual abuse. Because of the possible harmful effects of AD dolls on children's memory, researchers have suggested using HFDs as an alternative to aid children in their reports.

Compared to AD dolls, HFDs are presumed to be less suggestive as their two-dimensional nature makes them less likely to trigger exploratory and fantasy play behavior in children (Lamb, 1994; Willcock, Morgan, & Hayne, 2006). Because of this, HFDs are often used as an integrated tool in many types of interviews. However, research concerning the effectiveness of HFDs on the amount of reported details and accuracy of children's reports is extremely scarce. In a study from Aldridge and colleagues (2004), four- to 13-year-old alleged victims of sexual abuse were asked questions about the alleged event by police officers. Meanwhile, they were presented with a HFD. The authors concluded that the presentation of the HFD assisted police officers in eliciting forensically relevant information. However, since the accuracy (i.e. total correct reported information divided by the total correct and incorrect information) of this information could not be measured, this result needs to be interpreted with caution (see also Teoh, Yang, Lamb, & Larsson, 2010).

In general, studies that were able to assess the accuracy of the elicited information show that when presented with HFDs, children's reports are highly inaccurate (Brown, Pipe, Lewis, Lamb, & Orbach, 2007; Bruck, 2009; Willcock et al., 2006). In one of those studies (Willcock et al., 2006), children visited a fire station. During this trip, a confederate dressed in a fire-service uniform touched each child on five different places. Immediately (Experiment 1), 24 h (Experiment 1) or one month (Experiment 1 & 2) after the event, they had to point out on a clothed HFD where they had been touched. Overall, children reported less than half of the locations where they were touched. More importantly, about half of the reported touches were inaccurate.

Low accuracy rates were also obtained in Brown and colleagues' (2007) study. Here, five- to seven-year-old children participated in a staged event in which they were touched on seven distinctive locations (e.g. feet were tickled, ears were wiggled) by a photographer. After a delay of four–six weeks, they were interviewed about the event with two-thirds of the children receiving a HFD to aid them in their event recall. Results showed that very few children reported any of the touches. Like Willcock et al.'s (2006) study, more than half of the provided information following open questions about touch was inaccurate.

Also, in a recent study by Bruck (2009), children aged three–seven years participated in a staged event (i.e. magic show) in which a series of touches occurred. Afterwards, they had to recall which touches they could still recollect either with the aid of HFDs or without the assistance of HFD (i.e. verbal condition). Bruck found that HFDs resulted in more erroneous reports than the verbal condition.

The studies discussed above, however, vary greatly with respect to their methodology. One striking difference is that clothed (Willcock et al., 2006) or unclothed (e.g. Aldridge et al., 2004) HFDs have been used to examine its effects on children's reports. Thus far, no studies have contrasted the effect of both types of HFDs on the accuracy of children's memory. Yet, examining this issue would deepen our knowledge about specific retrieval cues (i.e. clothed or unclothed HFD) that

could improve children's memory reports. Also, few studies (see Willcock et al., 2006) have looked at the impact of presenting the HFDs immediately or after a delay following the event. This is of practical significance as children are often interrogated weeks or months after a traumatic event (see Bruck, 2009). Finally, there is little research examining the effect of age on the use of HFDs on children's recall (see Aldridge et al., 2004; Teoh et al., 2010). The above described studies (e.g. Brown et al., 2007; Bruck, 2009) for example, have mainly focused on testing young children and failed to include older ages (e.g. 10-year-olds) in their experimental design. Thus, up until now, the above-mentioned issues have never been examined in one single study. Consequently, investigating these issues could provide a significant contribution to the field of the effect of nonverbal tools on children's reports of touch (see also Bruck, 2009).

Hence, in the current study, we examined the effect of clothed and unclothed HFDs on 4/5- and 9/10-year-old children's reports of touch immediately following the event or after an interval of three weeks. One hundred and sixty children participated in a staged event in which measurements of their body parts (e.g. waistline) were taken. During this event, they were touched on 10 locations. In contrast to Willcock et al.'s (2006) study, we used distinctive instead of incidental touches as distinctive touches might be more salient and hence, more likely to be remembered than incidental ones (see also Brown et al., 2007).

We expected, with respect to the difference of clothed and unclothed HFDs, that the unclothed HFDs would be regarded as more suggestive than the clothed HFDs and hence, would lead children to report more incorrect touches. This hypothesis was inferred from the idea that unclothed HFDs trigger more fantasy and exploratory play in children than clothed HFDs which would result in more erroneous reports of touch. Furthermore, although research shows that children can understand the symbolic representation of pictures (i.e. HFDs; e.g. DeLoache & Burns, 1994; DeLoache & Marzolf, 1995), one might expect that children are less likely to comprehend that unclothed HFDs are a representation of their body than clothed HFDs. This is because unclothed HFDs, relative to clothed HFDs, correspond less well with the true physical attributes of a child's body. Consequently, unclothed HFDs would trigger more incorrect reports of touch than clothed HFDs.

Also, we predicted that younger children would be more inaccurate and report more incorrect touches than older children. This prediction is built on memory development research (e.g. Ceci & Bruck, 1993; Lamb et al., 2003) showing that younger children provide fewer details and are more suggestible than older children.

Method

Participants

Eighty 4/5-year-olds (40 girls; mean age = 4.66 years (56 months), SD = 0.53 (6.36 months) and 80 9/10-year-olds (36 girls; mean age = 9.50 (114 months), SD = 0.64 (7.68 months)) obtained parental consent for their participation. These children were recruited from different primary schools in the Netherlands. They received a small present for their enrollment. The study was approved by the standing ethical committee of the Faculty of Psychology and Neuroscience, Maastricht University.

Design

The current study used a 2 (Age: younger vs older children) × 2 (Drawing type: clothed vs unclothed) × 2 (Delay: immediately vs after three weeks) between-subjects design. The children were randomly distributed to the type of HFD and time of interview.

Procedure

Event

Children participated individually in a staged event that took place at their school. One of two female research assistants (third or fourth author) explained to the children that she was interested in growth differences between children in elementary schools and that therefore she wanted to take measurements of different body parts of them. After verbal consent was attained from the children, the research assistant showed them a measuring-tape and started to take measures on 10 different body parts: (a) the contour of the head, (b) the waistline, (c) the contours of both upper arms, (d) both hands from fingertips to wrist, (e) the contours of both upper legs jus above the knees, and finally (f) the soles of the feet. The children had to take off their shoes when measuring their feet, but remained fully dressed during the other measurements. All children received the same sequence of touches. This was done to provide children a rather structured event (i.e. all touches were executed from top to below).While performing the measurements, the research assistant assured to touch the children distinctively on the measured body parts, so that both the measuring-tape and the hand of the research assistant touched the body parts. The reason for this was to show children which touches were salient and important in order to increase the memorability of the touches. If children were interviewed immediately after the event, the research assistant told them that another female assistant would ask them some questions. In the delayed condition, children were told that the second part of the study would occur three weeks later.

Interview

The interview in the current study was based on the protocol used by interrogators of the Dutch police to interview children in the age of 4–12 years (van Amelsvoort, Rispens, & Grolman, 2007).[1] This protocol emphasizes the importance of avoiding any form of suggestion and using chiefly open invitations in the interview. Also, it stresses that children's own words should be used when asking for additional information (e.g. 'You said that he "tickled you funny". Could you tell me everything about that?'). The third and fourth author witnessed several interrogations in which the protocol was used and were trained in the procedure of the protocol. Specifically, they were trained in conducting this protocol by one of the authors of the Dutch interview protocol (I. Rispens). They had to practice the interview several times so that they understood how the procedure exactly went and that roughly the same questions had to be asked.

During the interview phase of the test, the second research assistant explained to the children that she wanted to have a little talk and that they were going to do a small task. The assistant showed them the measuring-tape as a prompt to direct the

memory towards the target event. While showing the measuring-tape, she told the following: 'I would like to talk with you about the time you were together with the lady who carried this tape with her.'

When they knew which event the interviewer wanted to talk about, the interviewer invited them to report everything he or she could remember about the event. The interviewer emphasized that she was not present during the event and therefore had no knowledge about the event. This was done to reassure them that there were no correct or wrong answers so that they felt free to report everything it could recollect. During this free recall stage, any form of suggestion was avoided. Only open invitations (e.g. 'Tell me more.') were used to encourage them to tell more. In case children merely mentioned that the researcher took measurements but not on which body parts, cued invitations were used (e.g. 'You mentioned that the woman took measurements. Tell me more about that.').

Once the child failed to report more details about the event, a HFD (clothed or unclothed) was presented. The research assistant explained that she wanted to use this drawing for locating the precise places where the measurements were taken. Children were instructed to indicate on the drawing where the research assistant had measured and touched them by drawing a cross at the specific location. The interviewer made use of open questions when children did not recall more touches. When they did not understand the task, a small practice trial was introduced. During this trial, the interviewer touched the child's nose and asked the child to indicate on the drawing the correct body part that had just been touched. Five children (3%) needed this practice task.

Coding

To examine the effect of age, time of interview, and type of HFD on children's reports of touch, we included different dependent variables. For the free recall, we used (1) correct recall (e.g. recall of being touched on waistline, contour of the head), (2) incorrect recall (e.g. recall of being touched on knee, ear), and (3) forensically relevant errors (i.e. incorrect recall of being touched on genitals, breasts, or buttocks). Likewise, for the reported touches on the drawing, we included (1) correct touches, (2) incorrect touches, and (3) forensically relevant errors (i.e. reported touches within 0.5 cm^2 of the genital area, breasts, or buttocks).

To score children's (in)correct recall and touches, interviewers used a standard form on which they could indicate which body parts children mentioned during the free recall and which touches they reported after the presentation of a HFD. Furthermore, 25% ($n = 40$) of the (in)correct reported touches on the forms were scored by a second independent rater. Interrater agreement using intraclass coefficients (ICC) varied between substantial and high: ICC = 0.94 (high) for the correct touches, ICC = 0.72 (substantial) for the incorrect touches, and ICC = 0.79 (substantial) for the forensically relevant errors.

Results

Our most important analysis was the one in which we analyzed the reports of children before vs after they were presented with HFDs (i.e. phase of recall). After this, we looked at the accuracy of children's reports.

Phase of recall

Seventeen children (11%) correctly remembered being touched on the 10 body parts and did not report any incorrect information. To examine whether more (in)correct information was provided by the children after they were presented with a HFD, we conducted an Age (younger vs older children) × Delay (immediately vs after three weeks) × Drawing type (clothed vs unclothed) × Phase of recall (before vs after HFD) repeated measures ANOVAs with the last factor being a within-subjects variable. For correct information, results revealed a significant Delay × Phase of recall interaction ($F(1,152) = 4.19$, $p = 0.04$, $\eta_p^2 = 0.03$). Further analysis showed that children reported more correct information after the presentation of a HFD than before, yet this effect was only significant when they were interviewed immediately ($F(1,76) = 7.08$, $p < 0.01$, $\eta_p^2 = 0.09$; see Table 1). After 3 weeks, this effect failed to reveal significance ($F(1,76) = 0.06$, $p > 0.05$).

We also found a significant Age × Drawing type interaction ($F(1,152) = 7.07$, $p < 0.01$, $\eta_p^2 = 0.04$). Simple effect analysis showed that for the younger children, the unclothed HFD led to more correct reports of touch than the clothed HFD ($F(1,76) = 3.98$, $p = 0.04$, $\eta_p^2 = 0.05$). For the older children, this was not significant ($F(1,76) = 3.98$, $p > 0.05$). Also, we found that for the unclothed ($F(1,76) = 5.70$, $p = 0.02$, $\eta_p^2 = 0.07$) and clothed HFD ($F(1,76) = 34.67$, $p < 0.001$, $\eta_p^2 = 0.31$), older children correctly recalled more information than their younger counterparts. All other effects did not attain statistical significance.

When we analyzed whether the presentation of a HFD boosted the incorrect information, we found a significant main effect of Phase of recall ($F(1,152) = 39.59$, $p < 0.001$, $\eta_p^2 = 0.21$). Indeed, children recalled more incorrect touches after they were presented with a HFD. For the forensically relevant errors, our analysis demonstrated a significant Age × Phase of recall interaction ($F(1,152) = 4.28$, $p = 0.04$, $\eta_p^2 = 0.03$). Although younger children made more forensically relevant errors than older children when a HFD ($F(1,152) = 2.53$, $p > 0.05$) was presented than when they freely recalled ($F(1,152) = 2.00$, $p > 0.05$) where they had been touched, this simple effect, however, was not significant.

Accuracy

To investigate whether our independent variables would impact the accuracy of children's reports, we calculated accuracy scores (total correct information/total correct information + total incorrect information; see Brainerd, Ceci, & Reyna, 2008). The total incorrect information was defined as the sum of reported incorrect information plus reported forensically relevant errors. When we analyzed accuracy scores of the free recall, we found a significant main effect of Age ($F(1,152) = 4.36$, $p = 0.04$, $\eta_p^2 = 0.03$) with older children being more accurate than younger children (see Table 2). All other effects did not reach conventional levels of significance (all ps > 0.05). Likewise, when we performed this analysis on the accuracy scores of the reported touches on the drawing, we also found that older children were more accurate than younger children ($F(1,152) = 7.47$, $p < 0.01$, $\eta_p^2 = 0.05$). All other effects fell short of statistical significance (all ps > 0.05).

An Age (younger vs older children) × Delay (immediately vs after three weeks) × Drawing type (clothed vs unclothed) × Phase of recall (before vs after HFD)

Table 1. Mean number of (in)correct recall and forensically relevant errors (standard deviations in parentheses) before (Interview 1) and after (Interview 2) the presentation of HFDs.

		4/5-year-olds				9/10-year-olds			
	Age Interview	Immediate		3 weeks		Immediate		3 weeks	
Interview 1	Correct recall	6.65 (2.82)		5.23 (2.71)		8.60 (1.45)		6.45 (1.48)	
	Incorrect recall	0 (0)		0.18 (0.55)		0.08 (0.27)		0.33 (0.76)	
	Forensically relevant errors	0 (0)		0 (0)		0 (0)		0.05 (0.22)	
Interview 2	*Drawing*	C*	U†	C	U	C	U	C	U
	Correct recall	5.10 (2.38)	6.30 (1.87)	4.80 (2.50)	5.80 (2.80)	8.30 (2.00)	7.95 (1.57)	6.95 (2.09)	6.05 (1.50)
	Incorrect recall	0.85 (1.22)	0.85 (1.66)	0.85 (1.18)	0.80 (0.89)	0.65 (1.14)	0.45 (0.94)	0.50 (0.76)	0.95 (1.28)
	Forensically relevant errors	0.10 (0.31)	0.15 (0.49)	0.30 (0.57)	0.20 (0.52)	0.05 (0.22)	0.15 (0.37)	0.05 (0.22)	0.10 (0.31)

Note. * C, clothed HFD, †U, unclothed HFD.

Table 2. Mean accuracy scores of recall and reported touches (standard deviations in parentheses).

Age	4/5-year-olds				9/10-year-olds			
	Immediate		3 weeks		Immediate		3 weeks	
Interview / *Drawing*	Clothed	Unclothed	Clothed	Unclothed	Clothed	Unclothed	Clothed	Unclothed
Accuracy recall	0.93 (0.27)		0.88 (0.30)		0.99 (0.03)		0.95 (0.10)	
Accuracy reported touches	0.80 (0.25)	0.90 (0.16)	0.78 (0.29)	0.82 (0.24)	0.92 (0.13)	0.94 (0.11)	0.93 (0.11)	0.86 (0.17)

Note. No division is made between clothed and unclothed HFDs in the mean accuracy scores of recall as no HFDs were presented during the free recall. Furthermore, accuracy recall refers to the accuracy scores *before* the presentation of HFDs and accuracy reported touches refers to the accuracy scores *after* the presentation of the HFDs.

repeated measures ANOVA on the accuracy scores revealed a significant main effect of Phase of recall ($F(1,152) = 11.20$, $p < 0.001$, $\eta_p^2 = 0.07$). So, after the presentation of a HFD, children were less accurate than when they had to freely report where they had been touched. Furthermore, we also found a significant main effect of Age ($F(1,152) = 9.56$, $p < 0.01$, $\eta_p^2 = 0.06$), with older children having higher accuracy scores than younger children.

New details

The amount of new details that children produced for the first time after the presentation of a HFD was also examined. For new correct details, we found a significant main effect of age ($F(1,152) = 14.14$, $p < 0.01$, $\eta_p^2 = 0.09$) with younger children ($M = 1.55$, SD $= 2.15$) reporting more new correct touches than the older children ($M = 0.54$, SD $= 1.08$). All other effects were not significant. When we analyzed the new incorrect details and new forensically relevant details, no significant effects were obtained.

Discussion

The aim of the current study was to examine the effect of clothed and unclothed HFDs on children's reports of touch. The major finding of this study is that HFDs result in more errors regardless of whether these are clothed or unclothed and of whether children were interviewed immediately or after three weeks. Besides this, our main results can be catalogued as follows. To start, we found that for both HFDs, older children recalled more correct information than younger children. Secondly, we showed that only for the younger children, the unclothed HFD resulted in more correct touches than the clothed HFD. Thirdly, our findings indicated that during the immediate interview, children remembered more correct touches after the presentation of a HFD, yet this came at a price of reporting more incorrect touches than during the interview three weeks later. Finally, the current study showed that presenting a HFD significantly decreased children's accuracy.

Our finding that older children reported more correct information than younger children is well in line with laboratory and field-based research showing that memory functioning improves significantly between the ages of 4 and 10 (e.g. Baker-Ward, Gordon, Ornstein, Larus, & Clubb, 1993; Ornstein, Gordon, & Larus, 1992; Schneider & Bjorklund, 1998). More interestingly, we found that an unclothed HFD resulted in more correct touches within younger children than a clothed HFD. We, however, hypothesized that an unclothed HFD would deem to be more suggestive and lead to more incorrect reports of touch. It seems that an unclothed HFD provides more retrieval cues for younger children than a clothed HFD. It is probable that on a clothed HFD, body parts are more difficult to identify for younger children than on an unclothed HFD or that younger children find it more difficult to picture an image of themselves with the aid of a clothed HFD. For older children, however, this was not the case. Since memory performance increases with age, older children do not require extra assistance of an unclothed HFD for the recall of events.

Our finding that in younger children, unclothed HFDs lead to more correct reports of touch than clothed HFDs is interesting in light of studies showing that

young children are less capable of understanding the representational nature of pictures (e.g. DeLoache & Burns, 1994) than older children. Although we predicted that clothed HFDs would be regarded as more obvious body representations than unclothed HFDs, our study shows that in younger children, this does not seem to be the situation. However, we found that when we looked at the reports of children *after* the presentation of a HFD, the amount of correct information was enhanced in children. This indicates that children are able to use HFDs as representation of their own bodies. Clearly, investigating under which conditions children understand that clothed or unclothed HFDs are representations of themselves would be a fruitful empirical enterprise.

Although our results show that *after* the presentation of a HFD, the rate of correct information increased in children, more incorrect touches were also reported. We, however, predicted that the unclothed HFD would invite children to report more incorrect touches than the clothed HFD. Clearly, our study shows that both types of HFDs deteriorate children's reports of touch in the same way. This result is reminiscent of studies showing that HFDs result in substantial increases in reports of touch that did not occur (e.g. Brown et al., 2007; Willcock et al., 2006). However, similar to the results of Brown and co-workers (2007), this increase of incorrect reports of touch after presenting HFDs did not go hand in hand with an increase in forensically relevant errors as one would initially expect, whereas in an earlier study by Willcock et al. (2006), this increase was substantial (i.e. 10% reported genital touches and 25% reported touches in the breast area). This latter study, however, used less stringent definitions to detect touches on these areas (i.e. 1.0 cm^2 for the genital area and 1.5 cm^2 for the breast area) compared with the current study (i.e. 0.5 cm^2). Thus, one could argue that our more strict criteria to detect touches did not lead to a similar increase in forensically relevant errors.

Indeed, in the current study, we found that only 17 children (11%) were able to correctly point the 10 locations on the HFDs without making any incorrect reports of touch. Our percentage is considerably higher than the one found in Willcock and colleagues' study (2006; 1%). Our percentage might be the result of our use of distinctive and therefore more memorable touches (see Brown et al., 2007). Still, in light of the assumed benefits of HFDs, our percentage is dramatically low. That is, one would assume that children would regard HFDs as efficient retrieval cues which would lead to a significant majority of children accurately recalling where they had been touched.

One might ask what the practical relevance of our findings would be for the forensic setting. In this respect, it is highly important to look at our error rates. When we compare our error rates with those found in Brown et al.'s (2007) and Willcock et al.'s (2006) study, our rates are considerably lower. As mentioned earlier, this is likely the cause of our more memorable and salient event which prevented children for making more errors and because of our more strict criteria to detect touches. However, we believe that any incorrect reports of touch as the result of the presentation of a HFD might pose problems in the forensic setting. Brown and colleagues (p. 40) acknowledged this by stating that 'any erroneous reports that would have triggered suspicion in forensic contexts warrant concern.' Indeed, it is likely that incorrect reports of touch might result in interviewers drawing their attention to those reports that could lead to asking the wrong kind of questions.

In accordance with our prediction, younger children were more inaccurate in their reports of touch than older children. As has been stated before, younger children provide less detailed accounts of experienced events and are more likely to incorporate false details in their event descriptions than older children (e.g. Ceci & Bruck, 1993; Lamb et al., 2003). More importantly, we demonstrated that both clothed and unclothed HFDs significantly decreased children's accuracy. Studies on the efficacy of HFDs on the accuracy of children's reports have found a similar pattern of results (Brown et al., 2007; Willcock et al., 2006). Our study adds to the steady rising body of evidence showing that HFDs reduce the accuracy of children's reports of touch. Accordingly, this study is unique in its context as it shows that both types of HFDs adversely impact children's reports of touch.

Some caveats of the present study are worth mentioning. First, to mimic the forensic setting, we used distinctive touches instead of incidental touches because one might assume that children are predominantly touched on salient and distinctive places in child sexual abuse cases. For ethical reasons of course, our touches needed to be innocuous. Nonetheless, Steward and colleagues (1996) found that children recalled genital and anal touches more frequently and accurately than other touches. However, studies also show that not all abusive touches are salient and remembered accurately (e.g. Ceci, Powell, & Principe, 2002; Saywitz, Goodman, Nicholas, & Moan, 1991). Clearly, the issue of whether distinctive touches relate to the touches that occur in child sexual abuse cases needs further examination.

Second, in the current study, HFDs were always presented after the free recall. However, in forensic interviews, there is no consensus when HFDs are introduced. That is, in some interviews, they are presented first while in other interviews, they are introduced after the free recall. It is likely then that our increase in errors was the result of additional interviewing instead of the inherent nature of the HFDs. Bruck (2009) recently addressed this issue in her study. In this study, children were instructed to report a series of touches during a previous staged event. Half of the children first freely recalled where they had been touched and then reported where they had been touched after the presentation of a HFD. The other half first received a HFD and reported where they had been touched and then received a second interview. The study showed that errors were only elevated when HFDs were presented after the free recall. So, although in the current study we can not be sure whether our increase in errors was caused by the presentation of a HFD, Bruck's study demonstrated that this is, however, the most probable explanation.

Thirdly, our two types of HFDs (clothed and unclothed) did not only differ in nudity, but also on another dimension. To be more precise, our clothed HFDs looked much happier than the unclothed HFDs. One could argue that part of our findings could be affected by this issue. Future studies should therefore use types of HFDs that only vary in one dimension and examine their effects on children's memory reports.

To summarize, the present study shows that although clothed and unclothed HFDs can be useful in eliciting more correct information, HFDs also enhance the likelihood of reporting incorrect information. Thus, both types of HFDs significantly reduce the accuracy of children's reports of touch. We concur with Willcock and colleagues (2006) in that we warn against the use of HFDs in interrogative settings and add that this counts when clothed *and* unclothed HFDs are used and younger *and* older children are interviewed. Even though it could be tempting to

conclude that HFDs assist in children's reports of touch, our findings evidently show that the value of HFDs is severely constrained when children are interrogated about experienced events in sexual or physical abuse cases.

Note

1. We gratefully thank Imke Rispens for providing us with information about the Dutch interrogation protocol. She works as a psychologist at the Dutch police academy and teaches the Dutch interrogation protocol to police officers who interview children. We also gratefully thank Ad Verhoorevoort for showing us real child interviews. He works as head of the Child Interview studio of the police department in Eindhoven, the Netherlands.

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