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Children's reporting patterns after witnessing homicidal violence – the effect of repeated experience and repeated interviews

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For both legal and clinical purposes, it is of importance to study children's memories and reports of stressful events. The present study investigated the reporting patterns of 83 children who had witnessed homicidal violence, which is considered to be a highly stressful experience. More specifically, we explored the possible effects of prior violence exposure and of repeated questioning on the amount of details reported. Results showed that the majority of children provided detailed reports about the homicidal violence they had witnessed, including details concerning what happened before, during, and after the violent act. The children provided detailed and vivid testimonies from their experiences, whether they witnessed the event for the first time or had prior experience of witnessing severe violence against the victim by the perpetrator. Children with no prior experience of repeated violence who underwent repeated interviews provided more details than those interviewed once. The present data indicate that children are competent witnesses when questioned in legal contexts after having been exposed to extremely stressful events. These findings have implications for research related to children's memories and reporting of traumatic experiences, as well as practical implications for future treatment and evaluation of children's testimonies.

Keywords: children's memory and reports; homicidal violence; repeated interviews; repeated exposure

According to prevalence estimates, large numbers of children experience different forms of violence each year. Some are bystander witnesses and according to Save the Children Sweden, about 100,000–200,000 children witness violence in their homes yearly (Save the Children Sweden, 2003). Others are directly victimized and harmed. Research has shown that more than half of children who experience parental intimate-partner violence have been abused themselves (Annerbäck, Wingren, Svedin, & Gustafsson, 2010). The types of violence children are exposed to differ, varying from less severe forms of battery to the most extreme forms, such as homicide (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009). Some children encounter violence once and in a single setting, whereas others are exposed to repeated violence in multiple contexts (Finkelhor, Ormrod, & Turner, 2007), such as in their neighborhoods and communities (Weist, Acosta, & Youngstrom, 2001), in their schools (Janosz et al., 2008), and in their homes (Burman & Allen-Meares,

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1994; Edleson, 1999) The present study investigates the reporting patterns of children who have witnessed homicidal violence, and the effect of repeated experience of violence and repeated interviews.

Children's memories of traumatic and abusive events

Exposure to violence is considered a potentially harmful experience. Witnessing homicidal violence, for example the murder of a parent, is a highly emotional or traumatic event, seldom studied by researchers working in the area of children and investigative interviewing. A substantial number of studies have investigated the nature of children's memories and recall of stressful events (for a review, see Pipe, Lamb, Orbach, & Esplin, 2004). Overall, children – even as young as three years of age – seem to have extensive memories for a variety of stressful events, such as painful and stressful medical procedures (Goodman, Quas, Batterman-Faunce, Riddlesberger, & Kuhn, 1997; Salmon, Price, & Pereira, 2002), natural disasters including hurricanes and tornados (Ackil, Van Abbema, & Bauer, 2003; Bahrck, Parker, Fivush, & Levitt, 1998; Fivush, Sales, Goldberg, Bahrck, & Parker, 2004), physical and sexual abuse (Ghetti, Goodman, Eisen, Qin, & Davis, 2002) and kidnapping (Terr, 1988). Research indicates that both children and adults exposed to traumatic events in real-life or emotionally loaded events in the laboratory, tend to increase their cue selectivity for central, and less so for peripheral, details of the events (Christianson, 1992). There is a complex interaction between impact of the event and what information is retrieved from that event. Much of the difference across studies concerning memories for traumatic or stressful events is due to differences in what detail the information is studied and the definition of what constitutes a traumatic experience, and central and peripheral information. Different individuals may understand and interpret stressful events differently, and individual factors may affect all three stages of memory (i.e., encoding, storage and retrieval) of a traumatic event differently (Cordon, Pipe, Sayfan, Melinder, & Goodman, 2004). The single most important and critical feature of a criminal investigation, that is the determinant of whether a case is solved, is the completeness and accuracy of the eyewitness's account. Eyewitness information (detailed and accurate accounts) is for example, critical in apprehending the suspect and to avoid innocent persons being falsely convicted, and crucial for juries and judges to make accurate decisions in court (Fisher, 1995).

In relation to child victims of sexual abuse, who are well recognized by both the research and policy-making communities, children who witness violence have been relatively invisible in both research and the political debate. The studies that are at hand have focused on their experiences of non-fatal violence (Eriksson, Biller, & Balkmar, 2006; Eriksson, Källström Cater, Dahlkild-Öhman, & Näsman, 2008). Studies investigating children's memories and recall of being witnesses to homicidal violence are limited in number (Eth & Pynoos, 1994; Malmquist, 1986; Pynoos & Eth, 1984). A few studies investigating exposure to domestic violence indicate a tendency of forgetting. For example, Follmer Greenhoot, McCloskey, and Glisky (2005) showed that some children remembered less information about the violence over time, and in their recollections excluded some details about severe violence. The vast majority of available studies, however, indicate that children who have witnessed severe violence form vivid memories that are retained over long periods of time,

especially in regard to the central details of the event (Malmquist, 1986; Pynoos & Eth, 1984). Children who have been interviewed after having witnessed the murder of a parent do not show any tendencies to misbelieve what they have witnessed and do not show forgetfulness due to trauma. Instead, most children are well aware of their experiences and can differentiate real experiences from fantasies (Pynoos & Eth, 1985). Other studies have shown that children who have witnessed family violence have, in addition to visual memories, bodily and auditory memories as well, and that auditory memories are perceived as extra agonizing (Överlien & Hydén, 2007). Children's memories, though not always verbally expressed, have been shown to appear in other forms. For example, one child who witnessed the killing of her mother re-enacted the fatal event in plays (Strati, 2010). A recent study investigating children's memories and reports of homicidal violence revealed that children remember their experiences well (Christianson, Azad, Leander, & Selenius, 2012). The majority of the children showed little or no reluctance to report on the severe violence they had witnessed and provided a great amount of details concerning the important features of the violence (i.e., forensically relevant information such as details about the assault and the perpetrator – how the violence was executed, possible weapon, victim's and perpetrator's verbalizations, etc.).

Taken together, previous research suggests that children who have been exposed to serious forms of violence have the ability to remember these stressful events and express their memories in different ways. There are, however, different degrees of children's involvement, which may have direct effects on their memories and testimonies. In comparison with other types of traumatic experiences, for example, sexual assaults, children in the present study are witnesses of the to-be remembered event and not the victims per se. To further elaborate on this topic and to explore possible variations and parallels with investigative interviews of child sexual abuse victims, we explore the reporting patterns of child witnesses of homicidal violence, and more specifically, we investigate the effect of repeated experience of violence and repeated interviews.

Repeated violence

Most studies of traumatic memories have focused on children exposed to single-event traumas (Fivush, Hudson, & Nelson, 1984). Yet many children who have been subjected to different forms of trauma have been victimized repeatedly. The Swedish Committee on Child Abuse estimates that about 5% of all children in Sweden are repeatedly exposed to violence in their homes every year (The Swedish Committee on Child Abuse, 2001). Deadly violence is, more often than not, perpetrated by someone closely related to the victim (e.g., a family member, relative or friend), and a high number of these cases involve intimate partner femicides, that is, the murder or attempted murder of a woman by a close partner such as a boyfriend, husband, ex-partner, etc. (Brå, 2007, 2008). Approximately 20 cases of deadly violence, and more than twice as many cases of attempted murder, against women are perpetrated each year in Sweden (Brå, 2007). In the majority of intimate partner femicides, the woman has been battered for a long period of time, sometimes several years, before she is killed, subjecting the children to the trauma of also witnessing severe violence prior to the homicidal event (Smith, Morroco, & Butts, 1998). There are reasons to believe that chronic exposure comprises a different sort of to-be-remembered stimulus than

does one-time trauma, and there is substantial evidence that children recollect and report repeated events differently than they do single events (see Roberts & Powell, 2001, for a review).

Several theories can be used to explain how children's memory for single, compared to repeated events, might differ. For example, if a person experiences an event of similar character repeatedly, there is an increased likelihood that he or she will create a *schematic memory* of the events (Hintzman, 1986; Hudson, Fivush, & Kuebli, 1992). Schemas are generic knowledge structures that reflect the individual's understanding of the temporal and/or causal sequence of events that typically occur within that schema (Farrar & Goodman, 1992). A script is a schema for an event that a person has repeatedly experienced. When children experience an event repeatedly they develop scripts for their experiences and children, as young as three years of age, have been shown to be able to create schematic memories (Farrar & Goodman, 1992). Schematic memories or 'scripts' typically enhance recall of features common to all episodes and include fixed and variable details. Fixed details remain the same way during each occasion while variable details change between the instances of a repeated event. Across repeated experience fixed details are represented in the scripts as particular details making the memory for them well retained, while variable details are not associated with any one instance, making it difficult to retrieve details associated with the specific event (Hudson, 1990; Roberts & Powell, 2001). Children who have experienced repeated violence are therefore highly accurate about details that are constant across occasions, for example what happens before or after the abuse, but less accurate about details that are variable and they are more like to confuse these variable details across occurrences (Powell, Roberts, Ceci, & Hembrooke, 1999).

Another theory that can be used to further understand memory for repeated events is *fuzzy trace theory* (Barined & Reyna, 1990, 2004). This theory suggests that two independent memory traces, a verbatim and a gist trace, are simultaneously formed, and processed separately from and in parallel to each other, when a person experiences an event. The verbatim trace contains the precise details for the event, while the gist trace contains the general meaning of the event. When an event is experienced repeatedly, distinct verbatim traces are formed while the same gist trace is activated each time. Repetition leads to stronger traces, and verbatim trace decays much faster than gist traces and so recall relies mostly on gist memory rather than verbatim memory. Gist traces can thus be compared to scripts where gist representations can hold slots of number of verbatim traces. It is more difficult for younger children to develop gist traces (Brainerd & Reyna, 1998), which is consistent with findings that it takes younger children longer to develop a script. Younger children would therefore have more difficulties in processing verbatim details because they take longer to build up gist traces, and that verbatim traces decay more quickly in younger children than in older children.

Other factors affecting children's memory of repeated events

Children who have suffered more severe and long-lasting abuse may develop different defense and coping strategies to protect themselves from these experiences (Terr, 1991). In some cases, a dissociative reaction and behavior can occur (Putnam, 1997). Dissociation is a psychological mechanism that operates during and immediately

after the traumatic event; its purpose is to act as a coping strategy during extreme stress and trauma. For instance, the child may change focus by consciously directing his/her attention and awareness to his/her thoughts and imagination, instead of to the ongoing violence. Accordingly, dissociation results in memories of isolated features of the traumatic events that are not integrated into other memory features. This process may have a negative effect on information encoding, thus reducing the quality and number of details reported (Putnam, 1997). However, a different pattern has also been suggested, where dissociation among maltreated children has been associated with more detailed testimonies (Eisen, Qin, Goodman, & Davis, 2002). This may be due to the dissociation of feelings rather than facts, such that the child uses emotional regulation, instead of cognitive avoidance, to handle the ongoing violence. Moreover, research has shown that children who have been exposed to long-lasting abuse are less likely to disclose the abuse than children who have been exposed to a few acts of less severe abuse (Arata, 1994; Hershkowitz, Lanes, & Lamb, 2007), even if contradictory findings, revealing the opposite pattern, have also been reported (London, Bruck, Ceci, & Shuman, 2007).

The interviewers questioning techniques may influence children's memory for an instance of a repeated event. Particular questioning techniques (general versus specific) may access different types of memory and will therefore influence the content of a child's response to questions about repeated events. Research has shown that phrasing a question more generally, when questioning a child witness suspected of having been abused repeatedly, may result in more information reported, although it may not include more specific information (Hudson & Nelson, 1986). Some researchers have found that children who have engaged in repeated events are more suggestible than children who have experienced a novel event (Connolly & Lindsay, 2001), while other researchers have demonstrated that children who experienced multiple events are not more suggestible (Powell & Roberts, 2002). Repeated experience has been shown to decrease susceptibility to suggestions regarding fixed details of the event, while the susceptibility to suggestions regarding variable details increases (Connolly & Lindsay, 2001). This means that children who have repeated experiences are less suggestible about details that remain the same across instances than children with a single event experience. For details that change across instances, some researchers have found that children with multiple experiences are more suggestible than single-event children (Connolly & Lindsay, 2001), whereas other researchers have found the opposite pattern (Powell et al., 1999). Thus, previous findings suggest that repeated experiences have both beneficial and detrimental effects on children's memory and reports, and it is therefore of interest to further investigate how witnessing repeated acts of violence affects reporting on the event. Since the aim of the present study was not to investigate the suggestibility of children, nor how the interviewers questioning style effect children's reporting, we will not further elaborate on these topics.

Repeated interviews

In forensic settings, a child witness may be interviewed on several occasions. There is divided opinions on whether repeated interviews are beneficial or if they have a detrimental effect on the outcome of an interview (La Rooy, Lamb, & Pipe, 2009; for a review on the subject, see La Rooy, Katz, Malloy, & Lamb, 2010). A common

opinion is that repeated interviews are intrinsically suggestive, have negative consequences for the accuracy of the report, produce inconsistency in witness testimony and recollection of the events, and may cause the witness or victim additional distress (Goodman & Quas, 2008). Research has shown, however, that repeated interviews, when conducted correctly by using non-suggestive and open-ended questions, are often necessary and beneficial to the outcome of the interview (La Rooy et al., 2009). Failure to distinguish between the effects of suggestive interviewing and repeated interviewing per se has led individuals working with professional guidance, prosecutorial decision-making and judicial praxis to frown on the practice of repeated interviewing. In some European countries (such as Sweden and Scotland), for example, it is recommended not to conduct more investigative interviews with children than is absolutely necessary, on the grounds that repeated interviews are suggestive as they increase the chance of asking the same questions, that they may cause child witnesses to become inconsistent in their recollections, that they are unnecessary or oppressive, or that they may prolong the child's distress (17§ FUK 'the Pre-trial Order'; Scottish Executive, 2003). New information reported in subsequent interviews is sometimes viewed skeptically, as many police officers, lawyers and judges are trained to be suspicious towards inconsistencies between information provided on different occasions. When evaluating the reliability of a child's testimony, consistency is considered an important criterion in Sweden (Granhag, Strömwall, & Hartwig, 2005; Gregow, 1996). Psychological research, however, suggests that inconsistent recall (i.e., the addition of new information) is a normal feature of memory referred to as the phenomenon of *reminiscence* (e.g., the emergence of new information) (Erdeleyi, 1996).

Repeated interviews are often necessary to establish rapport with the child in order to help him/her dare to report the abuse he/she has experienced, and time is often needed to enable such trust (Svedin & Back, 2003). Leander (2010) showed that sexually abused children report twice as much abuse-related information in subsequent interviews in comparison with the first interview, suggesting that two or three interviews may be needed to obtain complete testimonies from sexually abused children. Other studies have indicated that repeated interviewing increases accuracy, even when misleading questions are used (Goodman & Quas, 2008). Moreover, repeated interviews, when conducted correctly, can lead to more complete and more correct reported information (Hershkowitz & Terner, 2007). Children who are interviewed more than once have also been shown to be less likely to deny and omit information in the subsequent interviews in comparison to the first (Leander, 2010). Thus, when children are given repeated opportunities to provide information about what they have witnessed, they can further elaborate the information that they report and even provide entirely new information about their experiences.

The present study

The aim of the present study was to examine children's memories and reporting patterns after being witnesses to a homicidal event. More specifically, we compared testimonies of children who had previous experiences of repeated violence to children with no documented history of repeated violence exposure. We also elucidated whether repeated interviews affect children's reports. The script and fuzzy trace theories suggest that children should have difficulties recalling the exact details of

one instance of a repeated event. If items that vary across occurrences are consistent with the overall script they may become confused across occurrences, as predicted by fuzzy-trace theory. However, although children may be confused about items that are sometimes present and sometimes absent, repeated experience does appear to provide children with strong memories for details and events that are the same each time. Thus, it was predicted that children with prior experience would report less new details, but more fixed details.

Based on recent research (e.g., Leander, 2010), it was predicted that repeated interviewing would lead to more detailed reports by child witnesses, both for those with no documented history of repeated violence exposure and those with prior experiences.

According to theoretical models such as script theories and fuzzy trace theory, a slightly better memory performance would be expected for older children compared with younger children. The script and fuzzy trace theories also suggest that younger children more than older children should have difficulties recalling the exact details of one instance of a repeated event. Based on these assumptions, as well as on findings from field and analog research (Farrar & Goodman, 1992), age differences should be found in the number of details reported, where older children would report more details overall compared with younger children.

Method

Material and participants

An enquiry was sent out to all of the criminal investigation departments in Sweden ($N=21$) requesting access to investigations concerning homicide, manslaughter and battery with fatal outcome as well as attempted homicide and attempted manslaughter during the period January 2000–June 2010. The material requested was the pre-investigation protocol including transcribed dialogue cross-examination records (from audio- or video-recorded interviews) with children, 17 years or younger, who had witnessed (heard, seen or both heard and seen) homicidal violence, as well as various forms of verification data, such as police interviews with other witnesses, the victim (if still alive), the perpetrator, pictures and other documentations of the victim, technical protocols and maps and sketches of the crime scene. All available investigations meeting the criteria were sent or collected from 14 criminal investigation departments scattered across the country (Dalarna, Halland, Kalmar, Kronoberg, Norrbotten, Skåne, Stockholm, Södermanland, Uppsala, Värmland, Västerbotten, Västmanland, Västra Götaland, Östergötland). To the best of our knowledge, no specific interview guide was used. All personal and sensitive information (e.g., surname, personal identification number, address) was handled confidentially, and measures were taken to ensure that the individuals included in the present study could not be identified.

The sample consisted of interviews with 96 children ranging in age from 3 to 17 at the time of the police interview. Twenty-one children (age: $M = 9.9$, $SD = 3.0$) had been exposed to repeated acts of severe violence by the perpetrator against the victim prior to the homicidal event, while 62 children (age: $M = 11.4$, $SD = 3.4$) had no previous experience of witnessing severe violence and had only witnessed a single act of deadly violence. Thirteen children (age: $M = 7.6$, $SD = 2.8$) were coded as unclear,

as it was unambiguous whether or not they had witnessed repeated violence. In other words, on the basis of the information in the pre-investigation protocol, it could not be determined whether the child had witnessed one or several acts of violence by the perpetrator against the victim, and therefore these 13 children were excluded in the present study. The final sample consisted of 83 children: 37 (45%) boys and 46 (55%) girls and were divided into four groups: (1) children with prior experience of repeated violence by the perpetrator against the victim who have been interviewed once; (2) children with prior experience of repeated violence by the perpetrator against the victim who have been interviewed several times; (3) children with no prior experience of repeated violence who have been interviewed once; and (4) children with no prior experience of repeated violence who have been interviewed several times (see [Table 2](#)). The majority of the children (75%) had been interviewed on one occasion (the target interview), where the remaining children (25%) had been interviewed between one and five times before the target interview.

Coding procedure

The following variables were coded in the present study: demographic and other information about the child and the offense (e.g., crime classification, age and gender of child, identification of victim and perpetrator, whether the child had witnessed repeated violence, etc.); information about the homicidal violence per se (e.g., whether the murder/attempted murder included knife violence, strangling, fire arms, choking, etc.); information about the police interview (e.g., place of interview, number of interviews, etc.).

A data-driven coding procedure was used to examine the children's reporting patterns in the police interviews. All of the children's interviews were coded separately, and all informative details mentioned were counted and summarized individually. Details were only counted when they added to the understanding of the target incident, meaning that restatements of facts were not counted the second time they occurred, neither during the same interview nor subsequent interviews. The informative details reported by the children were coded based on the type of information they included and were divided into different 'reporting categories' concerning different features of the violent episode. The different categories used were partly adapted from previous research on children's memory and reporting (e.g., Christianson et al., 2012; Leander, Christianson, & Granhag, 2007; Leander, Granhag, & Christianson, 2005) and partly based on the interpretation of the material, as well as the research questions that were to be answered. The different categories used were: (1) *details about what happened before and after the homicide* (e.g., 'I was watching TV'), (2) *details about the assault* (e.g., 'He kicked her'), (3) *details about the perpetrator* (e.g., 'He looked mad'), (4) *details about the victim* (e.g., 'She screamed for help'), (5) *details about the child him-/herself* (e.g., 'I was afraid'), (see [Table 2](#) for definitions and examples from each reporting category). Furthermore, for each of the reporting categories, we documented whether the child reported: (1) *no details*, (2) *few details* (e.g., 1–3 details), (3) *many details* (e.g., 4–6 details) or (4) *several details* (e.g., 7 or more details). An *overall reporting* category was calculated by collapsing all categories and computing a mean value. The categories could also be coded as (5) *not applicable*, if a child had not witnessed the information per se for different reasons (e.g., if the victim was dead it would not be

appropriate to code what the child reported about the victim's verbalization). We also counted the number of children who: denied and/or withheld information; claimed not to have seen or heard the event; or claimed memory loss ('denial' was coded when the child claimed something did not happen when in fact it did, and 'withholding' was coded when the child had an opportunity to report something but failed to do so). These latter categories were only coded for information that could be verified.

In order to assess the veracity of the accuracy of child witnesses reporting, we compared the children's reports with information from other witnesses, the perpetrators confession (when available) and physical/medical evidence. It should however be noted that no exact degree of concordance between what the child witness reported and what could be verified was calculated.

Inter-rater reliability

One rater coded all of the investigations including all of the interviews with the children. Reliability measures were made by randomly selecting 20 investigations to be coded by a second independent rater. Intraclass correlation coefficient (ICC) statistics were performed to determine the consistency of the ratings between the two coders (Bartko, 1966). ICCs ranged from 0.61 to 0.97 (see Christianson et al., 2012). Disagreements were solved by discussion between the two raters.

Results

Overall, most of the children provided detailed reports about what they had witnessed. High levels of reporting were found for the categories *details about what happened before and after the homicide*, as well as *details about the assault*. Seventy (84%) of the children provided several or many details about what happened before and after the homicide, and 50 (72%) children reported several or many details about the assault (i.e., forensically relevant details about the battering). The lowest percentage was found for the category *details about the perpetrator*, where 31 (37%) of the children provided several or many details (see Table 1). The latter category included details about the perpetrator's emotions and verbalizations, and the results indicate that the children reported more information concerning actions (e.g., what the perpetrator or victim did, such as 'he beat my mom with a shovel over and over' and 'she pushed him away') than details regarding the emotions and verbalizations of a person (e.g., 'she was afraid' or 'he said he was going to kill her').

To elucidate whether prior experiences of repeated violence exposure had an effect on the amount of details reported, and to explore the potential effects of repeated interviews on the children's reporting, the children were divided into four groups: (1) children with prior experience of repeated violence by the perpetrator against the victim who have been interviewed once; (2) children with prior experience of repeated violence by the perpetrator against the victim who have been interviewed several times; (3) children with no prior experience of repeated violence who have been interviewed once; (4) children with no prior experience of repeated violence who have been interviewed several times. We compared type and amount of details reported by the four groups of children, and Kruskal–Wallis Tests revealed significant differences across the groups (see Table 2). To find out which groups

Table 1. Details about the homicidal violence provided by child witnesses in the police interview ($N = 83$) as well as correlation of age and each reporting category.

Reporting category	No details, <i>n</i> (%)	Few details, <i>n</i> (%)	Several details, <i>n</i> (%)	Many details, <i>n</i> (%)	Not applicable, <i>n</i> (%)	Example of details in the category	Age
Details before and after the homicide	3 (3.6%)	10 (12.0%)	25 (30.1%)	45 (54.2%)	0 (0.0%)	<i>I made breakfast. Then I sat in the living room and watched TV. (Boy 13 years)</i> <i>I went to mom and then XX called the ambulance and then the ambulance came and got mom. (Girl 9 years)</i>	0.02
Details about the assault	2 (2.4%)	10 (12.0%)	34 (41.0%)	26 (31.3%)	11 (13.3%)	<i>He grabbed my mom's hair. He dragged her into a corner. Threw her in the corner. Then he started hitting her very hard with the shovel. (Girl 11 years)</i> <i>He kicked her and hit her. My sister lay on top of her so my father kicked my sister instead of my mom. (Boy 5 years)</i>	0.17
Details about the perpetrator	4 (4.8%)	47 (56.6%)	21 (25.3%)	10 (12.0%)	1 (1.2%)	<i>My dad, he was shocked to see me there, he was really shocked, he was horrified to see that I was there. (Girl 13 years)</i> <i>He told my mother: 'now I'll take two knives and put them under the pillow'. (Girl 7 years)</i>	0.36*
Details about the victim	6 (7.2%)	37 (44.6%)	34 (41.0%)	5 (6.0%)	1 (1.2%)	<i>I saw mom, she turned her head, she was red all over her face, it wasn't blood but she was red as it tends to be when you come in from the cold. (Boy 10 years)</i> <i>Mom just got paler and paler, she was still alive at the time, she was breathing, and she was all pale. (Girl 16 years)</i> <i>She said she didn't want to die. (Girl 3 years)</i>	0.16

Table 1 (Continued)

Reporting category	No details, <i>n</i> (%)	Few details, <i>n</i> (%)	Several details, <i>n</i> (%)	Many details, <i>n</i> (%)	Not applicable, <i>n</i> (%)	Example of details in the category	Age
Details about him/ herself	3 (3.6%)	31 (37.3%)	31 (37.3%)	18 (21.7%)	0 (0.0%)	<i>Then I said, 'Stop it, that's not good' and pushed dad away a little. (Girl 10 years)</i> <i>I got out of bed and was going to run through the door. I wanted to ask what's going on. (Boy 15 years)</i> <i>I was afraid and sad and thought 'why is mom doing this'. And then I got really afraid. (Girl 12 years)</i>	0.27
Overall reporting	2 (2.4%)	37 (44.6%)	39 (47.0%)	5 (6.0%)	0 (0.0%)		0.27

Notes: The different reporting categories were adapted from a previous study and were created by collapsing several previous categories together and computing a mean value. For more information about which previous categories that were included as well as inter-rater reliability measures, see Christianson et al. (2012).

*Significant Spearman's correlation after Bonferroni correction of *p*-value ($p < 0.008$).

Table 2. Comparisons of age, gender, withholdings, denials and details provided in police interrogations by children with prior experience of witnessing severe violence before the homicidal event and children with no prior experience of witnessing severe violence before the homicidal event ($N=83$).

Variables	Children with prior experience of witnessing severe violence before the homicidal event		Children with no prior experience of witnessing severe violence before the homicidal event		χ^2	df	p	Post hoc tests
	Group A: Interviewed one time ($n=15$) n (%)	Group B: Interviewed several times ($n=6$) n (%)	Group C: Interviewed one time ($n=47$) n (%)	Group D: Interviewed several times ($n=15$) n (%)				
<i>Age of the child</i>					12.41	3	0.015	Groups A and B differed from each other in age
3–7 years	5 (33.3%)	1 (16.7%)	8 (17.0%)	4 (26.7%)				
8–12 years	10 (66.7%)	1 (16.7%)	19 (40.4%)	6 (40.0%)				
13–17 years	0 (0.0%)	4 (66.7%)	20 (42.6%)	5 (33.3%)				
<i>Gender of the child</i>					3.46	3	0.372	
Girl	9 (60.0%)	5 (83.3%)	26 (55.3%)	6 (40.0%)				
Boy	6 (40.0%)	1 (16.7%)	21 (44.7%)	9 (60.0%)				
<i>Withholdings and denials</i>								
Withheld information	2 (13.3%)	1 (16.7%)	5 (10.6%)	2 (13.3%)	0.26	3	0.968	
Denied information	2 (13.3%)	1 (16.7%)	1 (2.1%)	1 (6.7%)	3.89	3	0.116	
Claimed to not have seen or heard	4 (26.7%)	0 (0.0%)	10 (21.3%)	3 (20.0%)	1.92	3	0.717	
Claimed memory loss	1 (6.7%)	1 (16.7%)	3 (6.4%)	1 (6.7%)	0.86	3	0.636	

Table 2 (Continued)

Variables	Children with prior experience of witnessing severe violence before the homicidal event		Children with no prior experience of witnessing severe violence before the homicidal event		χ^2	df	p	Post hoc tests
	Group A: Interviewed one time (n = 15) n (%)	Group B: Interviewed several times (n = 6) n (%)	Group C: Interviewed one time (n = 47) n (%)	Group D: Interviewed several times (n = 15) n (%)				
	M (SD)	M (SD)	M (SD)	M (SD)				
<i>Details reported</i>								
Before and after the homicide	2.10 (0.91)	2.25 (0.61)	1.98 (0.85)	2.77 (0.37)	11.90	3	0.008	C < D
About the assault	2.35 (0.94)	2.75 (0.42)	1.92 (0.79)	1.96 (0.69)	8.43	3	0.038	
About the perpetrator	1.23 (0.78)	1.75 (0.94)	1.01 (0.67)	1.68 (0.80)	10.40	3	0.015	C < D
About the victim	1.67 (0.69)	1.33 (0.82)	1.04 (0.51)	1.66 (0.59)	16.18	3	0.001	C < A and D
About the child him/herself	2.07 (0.87)	2.00 (0.94)	1.47 (0.71)	2.16 (0.72)	12.57	3	0.006	C < D
Overall reporting	1.80 (0.61)	1.84 (0.59)	1.39 (0.43)	1.96 (0.44)	19.39	3	0.000	C < A and D

Notes: For the analyses of age, gender, withholdings and denials, Fisher's exact test was applied. Details reported by the children were coded 0 = no details, 1 = few details, 2 = several details, 3 = many details. Kruskal–Wallis Tests were calculated for comparison of the amount of details given by the four groups (A–D). Mann–Whitney U Tests with an alpha level of 0.05 were performed as *post hoc* tests after the Kruskal–Wallis Tests and the significant Bonferroni adjusted ($p < .008$) differences between the groups are reported. Other significant differences than the reported were not revealed.

differed significantly from each other, we performed Mann–Whitney *U* tests between the groups. In order to control for Type I errors, we performed Bonferroni adjustments. Results showed that children with no documented history of repeated violence exposure, who were interviewed once, reported fewer details compared with the group of children with no documented history of repeated violence exposure who were interviewed several times, and the group of children with prior repeated violence exposure who were interviewed once.

Additional analyses revealed that both details about the perpetrator, the child and the overall reporting were more limited among children aged 3–7 years compared with older children (see Table 3). The children with prior experiences of repeated violence exposure did not differ in age and gender from children without such repeated exposure (see Table 2).

None of the children claimed loss of memory before or after the homicide, and all of the children remembered substantial parts of the homicidal violence. However, 20 children provided fragmentary reports of certain parts of the event, some withholding details about the homicide, some denying information or claiming not to have seen or heard certain parts of what happened. In comparing the four groups of children, a series of Chi-square analysis for goodness of fit showed non-significant differences regarding withholding, denial, claiming not to have seen or heard, and memory loss. There were no differences related to prior violence exposure and there were no differences related to the groups of children interviewed once or several times (see Table 2). With respect to age, younger children aged 3–7 years, withheld or denied information to a larger extent compared with older children (see Table 3).

Discussion

The present study aimed at examining the reporting patterns of children who had witnessed homicidal violence, as well as at exploring possible effects of repeated violence exposure and repeated questioning on the children's reports. We found that the majority of children provided detailed reports about the homicidal violence they had witnessed, including details of what happened before, during, and after the violent act. The children could particularize central parts of the homicide as to giving detailed descriptions of the assault as well as what happened before and after. Thus, child witnesses seem to have vivid memories for these kinds of emotionally stressful events. This outcome is in line with previous research investigating children's memory for stressful and traumatic events (Christianson, 1992; Pynoos & Eth, 1985; Terr, 1988). The majority of children reported what they had seen and heard, and only a few children denied or withheld information. No one claimed memory loss for what happened before or after the event, and just a few claimed memory loss for parts of the homicidal event.

As predicted, the youngest children reported fewer details than older children with regard to their overall reporting and details concerning themselves and the perpetrator. These reporting categories included details about what the child said during the violent event, how he/she felt and details about his/her own actions, as well as details about the perpetrator's emotions and verbalizations. This result could be due to the developmental advantages of older children, which are related to factors such as cognitive and communicational abilities. For example, according to a review by Gross and Ballif (1991), children's ability to identify and recognize

Table 3. Comparisons of withholdings, denials and details given in police interrogations by three age groups of children witnessing homicidal violence ($N = 83$).

Variables	Children witnessing an homicidal event			χ^2	<i>df</i>	<i>p</i>	<i>Post hoc tests</i>
	Group A: Children in the age of 3–7 years ($n = 18$) <i>n (%)</i>	Group B: Children in the age of 8–12 years ($n = 36$) <i>n (%)</i>	Group C: Children in the age of 13–17 years ($n = 29$) <i>n (%)</i>				
<i>Withholdings and denials</i>							
Withheld information	7 (38.9%)	3 (8.3%)	0 (0.0%)	16.68	2	0.000	Group A differs from groups B and C in withholdings.
Denied information	4 (22.2%)	1 (2.8%)	0 (0.0%)	10.87	2	0.007	
Claimed to not have seen or heard	2 (11.1%)	9 (25.0%)	6 (20.7%)	1.42	2	0.570	
Claimed memory loss	2 (11.1%)	2 (5.6%)	2 (6.7%)	0.56	2	0.758	Group A differs from group C in denials.
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>				
<i>Details reported</i>							
Before and after the homicide	1.92 (1.02)	2.33 (0.65)	2.10 (0.86)	2.06	2	0.358	
About the assault	1.57 (1.02)	2.23 (0.72)	2.11 (0.70)	5.21	2	0.074	
About the perpetrator	0.77 (0.60)	1.27 (0.81)	1.43 (0.74)	9.56	2	0.008	A < B and C
About the victim	1.01 (0.57)	1.44 (0.62)	1.29 (0.69)	5.47	2	0.065	
About the child him/herself	1.30 (0.80)	1.85 (0.79)	1.87 (0.76)	6.26	2	0.044	A < C
Overall reporting	1.25 (0.53)	1.71 (0.44)	1.68 (0.55)	9.37	2	0.009	A < B and C

Notes: Details reported by the children were coded 0 = no details, 1 = few details, 2 = several details, 3 = many details. Kruskal–Wallis Tests were calculated for comparison of the amount of details given by the age groups (A–C). Mann–Whitney U Tests with an alpha level of 0.05 were performed as *post hoc* tests after the Kruskal–Wallis Tests and the significant Bonferroni adjusted ($p < 0.017$) differences between the groups are reported. Other significant differences than the reported were not revealed. For the analyses of withholdings and denials Fisher’s exact test was applied.

emotions and facial expressions improves with age. Overall, previous research has shown that as children grow older, the richness and informativeness of their memories increase (Fivush, 1998). It is important to note, however, that even the youngest children provided as much information as the older children did about forensically relevant details concerning the homicidal event (i.e., details about the assault, possible weapon, etc.). Thus, children of all ages seem to remember and provide extensive reports about the core parts of homicidal violence.

Younger children withheld and denied information more frequently than the older children. These differences may reflect the single influence or combined influences of linguistic, cognitive and social-emotional factors. It could be that the youngest children were more afraid during the abuse and because the high level of fear did not encode the act as well. Or, perhaps the younger children, due to their limited cognitive abilities did not comprehend the abusive act and therefore failed to report what they had witnessed. Presumably, the younger children do not have the same linguistic skills to express their abuse experience, or may not understand the 'meaning' of abusive acts as well as the older children. Bull (1992) suggested that one reason why children (and adults) report erroneous information in recall tests is because of social conventions pressuring them to provide an answer to a question even where respondents are really not sure of the answer. It cannot be ruled out that the interviewers' questioning the children failed to reduce the effect of this social convention on children's responses by, for example, telling them that they can answer a question with 'I don't know' or telling children that a repeat question does not mean that the previous answer was wrong, which could have affected the age differences in the children's responses.

Repeated violence exposure and its effect on the children's reports

Previous research has shown that repeated experiences of trauma could affect memories and reports of the event in different ways, for example, the formation of schematic memories, or use of dissociation, (e.g., cognitive avoidance and emotional regulation, which both can impair and enhance memory). It is also well established in the memory literature that repeated events are better remembered than single events, even though repeated episodes are often blended into a more generic memory, making it difficult to retrieve specific details associated with the individual experience (Hudson, 1990). The present findings suggest, however, that children with previous experiences of repeated violence exposure do not give fragmentary reports, but rather provide detailed accounts of the homicidal event. One possible explanation for this finding is that the homicidal event the children were interviewed about differed from the previous acts of violence they had witnessed, in the sense that the homicidal event was more salient and brutal, and deviated from the previous experiences of violence. The more unique the single event experience is, the less likely children will have developed a script about it. With unique experience it is likely that children tend to remember the most salient details. The group that differed the most from the other groups was the children who had witnessed a single event and who were interviewed once. They reported less details overall as well as details about themselves (i.e., own act, verbalizations, feelings, etc.), the victim and the perpetrator. This could be due to overwhelming emotional stress among these children. As this was an entirely new experience, children who had not experienced violence before perhaps looked away

or closed their eyes out of fear, and therefore failed to encode the act as well. In comparison to children with no prior experience of violence, children who had, for example, witnessed their father being abusive toward their mothers several times before were more familiar with these types of experiences, and may have developed coping mechanisms to handle the immediate emotional stress. Children who had witnessed a single event and were interviewed once may have had less knowledge about the functioning of the judicial system and/or aims and procedure of the investigative interview than the other children (who were interviewed on several occasions). As social recommendations, such as explaining the aim of the interview and the ground rule of communication, which are known to decrease the child's anxiety and to increase the amount of information reported by the child, it cannot be ruled out that the results are due to that the interviewers not spending enough time putting these children at ease.

The outcome of the present study is somewhat different from the reporting patterns of child sexual abuse victims, who tend to withhold and deny information about the abuse (Sjöberg & Lindblad, 2002; Svedin & Back, 2003). There may be several explanations for this divergence between these two groups. In general, sexual crimes are more socially taboo than are other violent crimes. For example, children who had witnessed the rape of their mother failed to report details about the specific sexual abuse, whereas they were more verbal about other types of severe violence (Pynoos & Eth, 1985). Furthermore, sexual abuse may be associated with increased feelings of guilt and shame (Svedin & Back, 2003), which may make the children uncomfortable about reporting sexual information. Moreover, bystander witnesses of severe violence can more easily simultaneously monitor the assailant, the victim, and others involved as well as their own activity compared with victims who are more directly involved (Pynoos & Eth, 1985). This could positively affect their focus during the event and hence their memories.

The importance of talking (more than once)

In line with previous research on children's reports of stressful events (Hershkowitz & Terner, 2007), our results showed that repeated questioning with child witnesses of homicide leads to more detailed reports. For example, for the group of children with no previous experience of witnessing severe violence before the homicidal event, repeated interviews led to more details reported for all categories except for details about the assault. While some professional guidelines recommend and are positive regarding conducting interviews over different occasions (Home Office, 2011), others discourage repeated interviews with child witnesses (17§ FUK 'the Pre-trial Order'), for example on the grounds that they may further distress the child. Repeated interviews may indeed cause feelings of agony and/or anxiety for some children, because they are asked to relive and discuss painful memories and experiences. On the other hand, most children who have witnessed violence have a great need to talk about their experiences, a result that has been confirmed in several studies (see e.g., Steeves, Laughon, Parker, & Weierbach, 2007). Moreover, it has been well established that there is a positive association between witnessing violence and different types of external and internal problems (see e.g., Edleson, 1999; Överlien, 2010). Hence, many of children who have witnessed violence are in need of professional help. Today, intervention most often depends on the children's

testimonies and disclosure, and if they are given an opportunity to disclose what they have witnessed, they will be more likely to receive proper treatment and protection from further or repeated abuse.

Another reason as to why some guidelines discourage repeated interviews is the fear of suggestion. The repetition of identical questions across the interviews is discouraged as it could lead to an unreliable and inconsistent report (Home Office, 2011). Repeated interviewing, however, may be useful in capitalizing on what we know about human memory and the phenomenon of *reminiscence* (e.g., the emergence of new information) (Hershkowitz & Terner, 2007). In addition to stimulating cognitive processes, repeated interviews may help children overcome the emotional difficulties and stress often associated with forensic interviews. For example, when alleged victims or witnesses are too distressed or ashamed to tell, interviewers may need time to build trust and rapport across the interviews (Leander, 2010; Svedin & Back, 2003).

One additional reason why it is of great importance to interview children who have witnessed violence, and to do so more than once, is that the child's testimony can play an important role in the criminal investigation. If other evidence is missing, and the child and the perpetrator are the only witnesses, which is common in cases of femicides, then the availability of the child's eyewitness testimony can be considered as one of the most important solvability factors (Fisher, 1995). The child's testimony may also affect the level of offense charges and penalties as well as the level of potential crime victim compensation. In Sweden, children who have witnessed violence towards a person close to them may be entitled to a special kind of criminal injuries compensation. It is therefore important that the police document if children were present during the violence and, more importantly, that they interview them about their experiences. Previous studies investigating criminal investigation processes have shown that the accuracy and completeness of an eyewitness's testimony may be an important determinant of whether or not the case is solved (Rand Corporation, 1975). The present results suggest that the reports of the children, which include detailed descriptions of the violent episode, could very well serve as evidence in criminal investigations. Results also show that repeated interviews elicit more complete reports. The completeness of a testimony is crucial to the rulings of a court, and a more complete account of the event will lead to more accurate decisions and court rulings. Thus, repeated interviews, conducted by using appropriate memory enhancing interviewing procedures (i.e., Cognitive Interview, see e.g., Fisher & Geiselman, 1992) will elicit more complete and detailed reports from child witnesses.

The Cognitive Interview (CI) is a investigate interview technique which is designed to enhance eyewitness recollection (Fisher & Geiselman, 1992). There are basically four strategies that can be used to improve memory performance once a trust relationship has been established: (1) mental reinstating the physical (external) and personal (interval) context that existed at the time of the event, (2) encourage to report everything that happened, regardless of the perceived importance of the information; (3) recounting the events in a variety of orders; and finally, (4) reporting the events from a variety of perspectives (starting points). The goal is basically to offer the witness a variety of potential retrieval cues that enhance recollection. From the literature on child development, there are reasons to believe that CI would be useful with child witnesses. Memory and metamemory skills develop gradually, and

young children do not spontaneously employ retrieval strategies, for example to use context reinstatement, to order recall, or to take a different perspective. Moreover, children appear to spontaneously recall less completely than adults. Although some of the strategies, for example 'reverse order' may be difficult to use, or that 'perspective-taking' may increase the risk of confabulation for very young children (seven-years old and younger), the CI has been found to increase children's recollection of critical facts of a violent crime event (Geiselman & Padila, 1988; Memon, Wark, Bull, & Koehnken, 1997), especially for very young children (Holliday & Albon, 2004; Verkamp & Ginet, 2010). With respect to children who has witnessed violence, the CI may very well serve as a usable tool, partly to improve the children's recall, for example, to enhance the descriptions of persons which the very young children experienced difficulties within the present study, but also to reduce the risk of confabulation and script memories among all of the child witnesses.

Conclusions

The present results parallel and extend the findings of existing research on children's memories and reports from witnessing violence. Children who have witnessed violence provided detailed and vivid testimonies from their experiences, whether they witnessed the event for the first time or had prior experience of witnessing severe violence against the victim by the perpetrator. Children with no prior experience who sustained repeated interviews provided more details than those interviewed once. Clearly, substantial amounts of new information can be recalled when children are reinterviewed. The present findings have obvious clinical and forensic implications, regarding future treatment and evaluation of children's testimonies, and for the study of trauma and memory in children in general.

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