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# Challenging the Credibility of Alleged Victims of Child Sexual Abuse in Scottish Courts

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**Abstract**

This study examined the effects of credibility-challenging questions (n = 2,729) on 62 5- to 17-year-olds' testimony in child sexual abuse cases in Scotland by categorizing the type, source, and content of the credibility-challenging questions defence lawyers asked and assessing how children responded. Credibility-challenging questions comprised 14.9% of all questions asked during cross-examination. Of defence lawyers' credibility-challenging questions, 77.8% focused generally on children's honesty, whereas the remainder referred to specific inconsistencies in the children's testimony. Children resisted credibility challenges 54% of the time, significantly more often than they provided compliant responses (26.8%). The tendency to resist was significantly lower for questions focused on specific rather than general inconsistencies, and peripheral rather than central content. Overall, children resisted credibility challenges more often when the aim and content of the question could be understood easily. As this was a field study, the accuracy of children's responses could not be assessed. The findings suggest that credibility-challenging questions that place unrealistic demands on children's memory capacities (e.g., questions focused on peripheral content or highly specific details) occur frequently, and that juries should be made aware of the disproportionate effects of such questioning on the consistency of children's testimony.

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This study examined the effects of credibility-challenging questions ($n$ = 2,729) on 62 5- to 17-year-olds' testimony in child sexual abuse cases in Scotland by categorizing the type, source, and content of the credibility-challenging questions defense lawyers asked and assessing how children responded. Credibility-challenging questions comprised 14.9% of all questions asked during cross-examination. Of defense lawyers' credibility-challenging questions, 77.8% focused generally on children's honesty, whereas the remainder referred to specific inconsistencies in the children's testimony. Children resisted credibility challenges 54% of the time, significantly more often than they provided compliant responses (26.8%). The tendency to resist was significantly lower for questions focused on specific rather than general inconsistencies, and peripheral rather than central content. Overall, children resisted credibility challenges more often when the aim and content of the question could be understood easily. As this was a field study, the accuracy of children's responses could not be assessed. The findings suggest that credibility-challenging questions that place unrealistic demands on children's memory capacities (e.g., questions focused on peripheral content or highly specific details) occur frequently, and that juries should be made aware of the disproportionate effects of such questioning on the consistency of children's testimony.

*Keywords:* credibility-challenging questions, defense cross-examination, children's responses, child sexual abuse, Scotland



Decades of interdisciplinary research investigating the competence of young witnesses has prompted major legal changes regarding the admissibility of children's testimonies and the availability of special measures to facilitate the process of giving evidence. Despite these important legal changes and the existence of several guidelines on questioning child witnesses sensitively (e.g., Achieving Best Evidence, Ministry of Justice, 2011; Equal Treatment Bench Book, Judicial Studies Board, 2013), practitioners and researchers from many countries, particularly from those with adversarial cross-examination systems, suggest that many children are still prevented from providing their best evidence (the most complete and accurate recollection witnesses are able to remember and express) by the use of inappropriate questioning (e.g., suggestive or closed-ended questions: Andrews, Lamb, & Lyon, 2015; Klemfuss, Quas, & Lyon, 2014; linguistically complex questions: Zajac, Gross, & Hayne, 2003). Since the Vulnerable Witnesses (Scotland) Act (2004), witnesses in Scotland below the age of 16 are automatically eligible for various special measures to facilitate their testimony, but they must still submit to adversarial cross-examination, which child witnesses often identify as the most stressful and difficult aspect of giving testimony (Eastwood & Patton, 2002; Plotnikoff & Woolfson, 2009). Questions asked during cross-examination that directly challenge children's credibility as witnesses or the consistency of their statements might be particularly difficult for children, but few researchers have analyzed the content and effects of credibility-challenging questions. The present study was conducted using courtroom transcripts of children who testified in Scottish courts between 2009 and 2014, and represents the first empirical investigation of the frequency and types of credibility-challenging questions asked in Scottish courts and of their effects on children's responses.

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## Credibility-Challenging Questions

During cross-examination, lawyers aim to discredit the evidence and challenge the credibility of opposing witnesses in an attempt to prove that witnesses are untruthful or inconsistent. Although challenging the witness is the ultimate aim of all cross-examinations, research on credibility-challenging questions focuses specifically on questions asked with the clear intent of eliciting inconsistencies in witnesses' testimonies and those that directly refer to facts that cast doubt on the witness's credibility.

In an analysis of 21 courtroom transcripts of 5- to 13-year-old children alleging sexual abuse in New Zealand, approximately 12% of defense lawyers' questions aimed to challenge the credibility of children's testimony (Zajac et al., 2003). Many types of questions challenge credibility, including suggestions of poor eyewitness ability, demonstrations that the witness's memories of the event are incomplete or inconsistent (Davies, Henderson, & Hanna, 2010; Westcott & Page, 2002; Zajac, O'Neill, & Hayne, 2012), and accusations that the witness has ulterior motives for disclosure or has a generally untrustworthy character (Davies et al., 2010; Davies, Henderson, & Seymour, 1997; Westcott & Page, 2002; Zajac et al., 2012). Studies investigating lawyers' cross-examination techniques indicate that all of the above mentioned techniques are frequently used to challenge alleged victims of child sexual abuse, along with challenges focused on the immaturity of child witnesses, suggestions of influence by adults or peers, or accusations that the alleged abuse has been imagined (Davies et al., 2010, 1997; Westcott & Page, 2002).

Other credibility-challenging questions may focus on contrasting the witness's behavior with jurors' assumptions about what makes an alleged victim credible. Such challenges might refer to promiscuous behavior, preexisting relationships with the accused, lack of resistance during the abuse, or delayed disclosure (Westcott & Page, 2002; Zydervelt, Zajac, Kaladelfos, & Westera, 2016). Despite legislative changes to make the cross-examination of alleged rape victims less distressing (e.g., Equal Treatment Bench Book, Judicial Studies Board, 2013), techniques that directly reinforce stereotypes and biases about sexual abuse are still used frequently by defense lawyers (Zydervelt et al., 2016) and significantly influence juries' decisions (Stolzenberg & Lyon, 2014a).

In addition to indirect or subtle suggestions of insincerity, defense lawyers frequently accuse children of lying directly (Davies et al., 2010, 1997). More than half of the children and teenagers interviewed in a study of child witnesses' experiences of giving evidence in the United Kingdom (Plotnikoff & Woolfson, 2009) reported having been called liars during cross-examination, often repeatedly. Many (42%) of the participants mentioned that changes to the style of cross-examinations, including prohibitions on lawyers calling them liars, would make courtroom procedures more accommodating.

Credibility-challenging questions were not the only aspect of cross-examination that children found distressing or confusing. Witnesses reported that questions focused on overly specific or irrelevant details and rapid shifts of focus also affected their ability to give testimony (Plotnikoff & Woolfson, 2009). Analogue studies investigating children's memories of negative events have found that both decay and misinformation effects influence the recall of peripheral events more strongly than the recall of central events (Goodman, Hirschman, Hepps, & Rudy, 1991; Roebers & Schneider, 2000; Schwartz-Kennedy & Goodman, 1999), although there is no consensus concerning the distinction between central and peripheral details (Paz-Alonso & Goodman, 2016). Defense lawyers might intentionally question witnesses extensively about peripheral details to elicit inconsistencies (Henderson, 2002), and this tactic might be particularly damaging for the evidence of children, who do not understand that their responses to these questions can compromise their credibility in the eyes of the jury. Because judges and prosecutors are often reluctant to intervene when defense lawyers ask complex questions, many such questions remain unchallenged (Davies et al., 2010; Eastwood & Patton, 2002).

## Children's Responses to Credibility-Challenging Questions

Although some types of credibility-challenging questions, particularly suggestions of lying, distress child witnesses (Eastwood & Patton, 2002; Plotnikoff & Woolfson, 2009), their effects on children's ability to provide their "best evidence" have not been extensively explored. Most credibility-challenging questions can be considered suggestive, as they put an account of the events to witnesses that is inconsistent with the children's prior testimony. Although some challenges, such as questions pointing out inconsistencies in children's previous statements, might not appear suggestive, these are often phrased so as to suggest that one previous statement was correct, or that both statements were mistaken or fabricated (e.g., "There seem to be a lot of inconsistencies in what you say now and what you said to the police. You said your brother was in the room and now you say he wasn't. You said the lights were on and now you say they weren't. Why do you suddenly remember now?"). Suggestive questions tend to elicit more self-contradictions in children's courtroom testimony than other question types (Andrews et al., 2015; Zajac et al., 2003), but questions that introduce previously unmentioned information contradicting children's previous accounts might have particularly negative effects.

An analysis of 21 cross-examinations of 5- to 13-year-old children in New Zealand showed that the majority of children changed at least one aspect of their testimony, with 95% of these self-contradictions arising in response to questions that were credibility-challenging or suggestive (Zajac et al., 2003). In a later comparison of the responses of children and adults to direct- and cross-examination questioning, credibility-challenging questions predicted self-contradictions when asked by defense lawyers but not prosecutors (Zajac & Cannan, 2009). Although adult witnesses were just as likely as children to change their answers in response to credibility-challenging questions, children were less resistant to suggestion than adults, and were less likely to clarify their responses to unclear or misleading questions. Analogue studies indicated that the self-contradictions children made in response to "cross-examination-style" questioning could not be accounted for by the correction of previous responses, but included changes from initially correct to incorrect responses (Zajac & Hayne, 2003, 2006), contradicting the view that children telling the truth always remain consistent when challenged (Mauet & Eichelbaum, 1989; Wigmore, Chadbourn, & Reiser, 1974). This style of questioning was particularly detrimental to the evidence of the youngest children (5- and 6-year-olds), who, unlike older children (9- and

10-year-olds), were as likely to change correct answers as incorrect answers (Zajac & Hayne, 2003, 2006).

### Developmental Differences in Children's Susceptibility to Suggestion

Age-appropriate courtroom procedures require not only that prosecutors and defense lawyers question children and adults differently, but also recognize developmental differences between younger and older children, including improvements in the comprehension of grammar and nonliteral speech, and in children's ability to understand speakers' implicit intentions. Analogue studies show that, although young children's recall of past events is generally as accurate as that of older children, suggestive questions negatively affect the accuracy of preschoolers' recall more strongly (e.g., Paz-Alonso & Goodman, 2016).

However, analyses of court transcripts and analogue studies have yielded inconsistent results regarding developmental differences in the occurrence of self-contradictions in response to suggestive questioning (Andrews et al., 2015; Fogliati & Bussey, 2014; Zajac et al., 2003; Zajac & Hayne, 2003, 2006). Zajac and Hayne (2003, 2006) demonstrated that younger children were both more likely to change their responses and to make correct-to-incorrect changes than older children, but these results were not replicated in a similar laboratory study (Fogliati & Bussey, 2014) or in analyses of actual court transcripts (Andrews et al., 2015; Zajac et al., 2003). Differences in the age groups compared and the experimental paradigms utilized might account for the inconsistent results, but more research is clearly needed to clarify age-related changes in children's ability to resist suggestion in the courtroom.

There is a similar lack of consensus on the extent to which lawyers are aware of possible developmental differences. Zajac et al. (2003) found that lawyers do not adjust their questioning styles to the age of the children they are examining, but other studies have reported the decreased use of suggestion and the increased use of option-posing questions in trials of younger as opposed to older children (Andrews et al., 2015; Klemfuss, Quas, & Lyon, 2014; Stolzenberg & Lyon, 2014b). An increase with age in the use of suggestion might indicate that prosecutors recognize differences in susceptibility to suggestive questioning, and thus, attempt to avoid questions that exploit the developmental capacities of younger children, but the adjustments they make when questioning children of different ages, and defense lawyers' reasons for doing so, need further exploration. No study has yet investigated developmental differences in children's responses when their credibility is challenged, or changes in how lawyers challenge their credibility.

### The Present Study

The present study examined credibility-challenging questions in courtroom transcripts of cases in which 5- to 17-year-old alleged victims of sexual abuse testified in Scottish courts between 2009 and 2014. It followed Zajac's studies in analyzing the frequency with which credibility-challenging techniques were used by defense lawyers and the ways in which children responded to these challenges, and was the first to extensively examine the interactions between type, source, and content of the challenges and children's responses.

Informed by the existing literature, we predicted that: (a) defense lawyers would challenge children's credibility with at least 12% of their questions, as reported by Zajac and colleagues (2003); (b) defense lawyers would use the same types of credibility-challenging questions when questioning children of different ages; (c) children would comply most frequently with challenges focused on peripheral details, and resist challenges focused on central aspects of the case; and (d) that, in comparison with older children, younger children would comply more often with, and resist less often, the suggestions implicit in credibility-challenging questions. In the absence of prior relevant research, the current study further conducted in-depth exploratory analyses of the types of credibility-challenging questions asked of children at different ages, the sources of the inconsistencies, and the effects on children's responses.

## Method

### Sample

The Court Service Team of the Scottish Court Service identified all cases conducted in six major courthouses in Scotland between 2009 and 2014 in which alleged victims of child abuse had testified. Recordings of the cases were located, and the portions of the trials in which the children testified were transcribed. Cases involving children who needed the assistance of translators or retracted their sexual abuse allegations or had many sections of inaudible or missing audio were excluded. Each case was heard before a judge and a jury, with the jury deliberating on the verdict, and the judge deciding on the sentence. Transcripts of 42 trials involving a total of 66 alleged victims of child sexual abuse were eligible for use in the current study. Witnesses were 5 to 17 years old at the time of the trial ($M = 13.44$, $SD = 2.74$). Most of the witnesses were female (73%). All defendants were male. Children almost always knew the defendant (90%). Most children (71%) alleged multiple instances of abuse, including vaginal or anal penetration (62%), oral penetration (11%), touching under clothes (15%), touching over clothes (5%), and exposure (8%). No information was available regarding the children's ethnic or socioeconomic background. In 77% of the cases, the defendants were found guilty of the offenses alleged by the children, while 23% were acquitted. Most cases involved more than one complainant. Only one complainant was involved in 48% of cases, two complainants in 43%, three in 5%, four in 2%, and five in a further 2%.

Age could not be entered into parametric tests as a continuous variable, because a Kolmogorov–Smirnov test indicated strong deviations from normality, $D(62) = .19$, $p < .001$. Therefore, children were categorized into three age groups: 12 years old and below ($n = 15$, $M = 9.40$, $SD = 2.13$), 13 to 15 years old ($n = 33$, $M = 14.06$, $SD = .79$), and 16 years and older ($n = 14$, $M = 16.29$, $SD = .47$). These categories were chosen because they accord with the Sexual Offenses (Scotland) Act (2009); 16 years is the age of sexual consent, but a person aged 16 or over can claim to be innocent of the charge of committing sexual offenses with a child aged between 13 and 16 years if that person "reasonably believed" that the child was over the age of 16, while this reasonable belief provision does not apply if the offense involved a child under the age of 13. These legal categories reflect differences in the attribution of sexual agency to children of different ages, which

might also influence how likely lawyers and jurors are to question witnesses' potential motives for lying or misrepresenting the events.

A variety of special measures were granted to the witnesses. All children testified in closed court. Twenty-seven percent of the witnesses were allowed to use screens, 40% had supporters present, and 44% gave evidence through a live CCTV link (72% of these from an in-court location and 28% from a remote location). The evidence of 14% of the witnesses was taken on commission.[1] Only one witness was accorded no special measures.

## Coding

The coding scheme for the present study was developed by the authors based on the existing literature on defense lawyers' questions and child witnesses' responses (e.g., Zajac et al., 2003, 2006) and on a preliminary reading of a subsection of the transcripts. Credibility-challenging questions were defined as all questions and statements that called into question the truthfulness, reliability, and/or sincerity of the evidence provided. This broad definition included a wider range of questions with credibility-challenging intent than previous studies by Zajac and colleagues (Zajac et al., 2003; Zajac & Hayne, 2003, 2006), which focused primarily on direct accusations of lying and uncertainty. Only cross-examinations were examined. For each challenge, the corresponding response was also coded.

**Challenge type.** Credibility-challenging questions were categorized (see Table 1) as either general (they challenged children's credibility by alleging that the children were unreliable or insincere) or specific (they referred to concrete inconsistencies between children's previous and current statements). General challenges were further categorized into eight subcategories: accusations of lying, conduct problems, memory problems, adult influence over the testimony, confusion, alcohol consumption, positive relationship with the accused, and consent to sexual acts. Specific challenges could refer to the omission or addition of details relative to previous testimony or a forensic interview or contradictions between the witness's current and previous accounts.

**Source of inconsistency.** The source of specific challenges was defined by the previous statement or evidence contradicted by the children's present statement (see Table 1). Sources of inconsistency were categorized as statements made by children during forensic interviews, statements made by children during the trial, statements made by other witnesses, and physical or factual evidence.

**Question content.** The content of credibility-challenging questions was categorized as either central or peripheral (see Lamb et al., 2008). The difference between central and peripheral details was determined in a context-sensitive manner. Central content focused on the essential narrative details concerning the immediate lead up to the abuse, the content of the abuse, the immediate aftermath of the abuse, the disclosure of details relating to the content of the abuse, and prior formal questioning related to the content of the abuse. Peripheral content focused on nonessential details, such as nonplot related descriptions of time, location, and events, descriptions of thoughts, emotions and sensory perceptions, and motivations for lying unrelated to the suspect.

**Children's responses.** Responses to credibility-challenging questions were categorized as compliant, resistant, "don't know" or "don't remember," and nonsubstantive or nonrelevant (see Table 1).

## Inter-Rater Reliability

A random selection of 20% of the transcripts were independently recoded so that interrater reliability could be assessed. When identifying question-response pairs, coders achieved 100% reliability. Reliability was high for challenge type, $\kappa = .97$, $SE = .01$, 95% confidence interval (CI) [.95, .99]; general challenge subtype $\kappa = .97$, $SE = .01$, 95% CI [.95, .99]; specific challenge subtype $\kappa = .92$, $SE = .02$, 95% CI [.88, .96]; source of inconsistency, $\kappa = .90$, $SE = .02$, 95% CI [.86 to .94]; question content $\kappa = .86$, $SE = .03$, 95% CI [.81, .91], and response type, $\kappa = .93$, $SE = .01$, 95% CI [.91, .95].

# Results

## Preliminary Analyses

To avoid confounding effects resulting from differences in the number of questions each child was asked, proportional scores were calculated for all variables. Appropriate statistical corrections were made when necessary when distributional assumptions were violated or multiple tests were made.

Preliminary discriminant function analyses revealed no associations between measures of the lawyers' credibility-challenging questions (frequency of credibility-challenging questions, proportion of general and specific challenges, and proportion of central and peripheral questions) and children's responses (resist, comply, do not know/remember, and nonsubstantive) and (a) case outcome (conviction, acquittal), (b) child gender (female, male), (c) whether children had a supporter present during their testimony (yes, no), (d) the number of children testifying in each case (1 to 5), and (e) how children gave testimony (in court without a screen, in court behind a screen, via in-court CCTV link, via remote CCTV link, or by commission). Therefore, case outcome, child gender, the number of children testifying in each case, the presence of supporters, and the ways in which children gave evidence were not considered further.

## Frequency of Credibility-Challenging Questions

Of the 66 transcripts examined, 2 children were not cross-examined, and a further 2 were not prompted using any credibility-challenging questions. Overall, 2,729 credibility-challenging questions were identified in the remaining 62 cross-examinations. On average, children's credibility was challenged 42.9 times ($SD = 44.4$); such questions comprised 14.9% ($SD = 9.04$) of all questions asked by defense lawyers. The assumption of homogeneity was violated, so the Brown-Forsythe test statistic is reported for a

[1] Taking evidence by commissioner is considered only for the most vulnerable witnesses. In these instances, delays in testifying may increase distress and trauma, significantly hindering the witness's ability to give evidence. Evidence can, therefore, be taken before a commissioner appointed by the court. The evidence is taken in full (direct-, cross-, and re-direct-examination) from the witness, proceedings are video recorded, and later received at the subsequent trial (see Vulnerable Witnesses [Scotland] Act, 2004).

Table 1
*Coding Definitions and Examples*

| Code | Definition | Examples |
|---|---|---|
| General challenge | | |
| Lying | Suggestion of fabricating a part or the whole of the testimony | "Are you making this up?" |
| Conduct | Mention of the child's current or previous behavioral problems | "Your teacher said you get into a lot of trouble in school." |
| Memory | Suggestion of problems with remembering | "You don't seem to remember very much from that night." |
| Influence | Suggestion of influence on the child's testimony | "Did your mommy tell you to say that he touched you?" |
| Confusion | Suggestion of confusion about the event | "Is that really how it happened or are you a bit confused?" |
| Alcohol | Suggestion of alcohol consumption | "Were you drunk when you left his house?" |
| Emotional relation to suspect | Suggestion of a positive, healthy relationship between the child and the alleged abuser | "Did you have fun with your uncle sometimes?" |
| Consent to sexual acts | Suggestion of a consensual sexual relationship between the child and the alleged abuser | "You wanted him to be your boyfriend, didn't you?" |
| Specific challenges | | |
| Omission | Suggestion that details mentioned in previous accounts are left out from the current testimony | "You told the police that he touched your breast too, but you didn't mention this today." |
| Addition | Suggestion that previously undisclosed details are mentioned in the current testimony | "You are saying your brother was in the room? Why didn't you say that to the police?" |
| Contradiction | Suggestion that the current testimony contradicts previous accounts | "You said to my colleague that this happened in your room and now it was the bathroom?" |
| Source of inconsistency | | |
| Police Statement | Suggestion that the current testimony is inconsistent with statements given to the police | "But that's not what you told the police, is it?" |
| Trial | Suggestions that the current testimony is inconsistent with other statements made in court | "When I asked you earlier, you said he wasn't there and now you're saying he was?" |
| Other witness statement | Suggestion that the current testimony is inconsistent with a witness's account of the events | "Your mom told us today that you were at your gran's house that day, not home." |
| Factual evidence | Suggestion that details of the current testimony are inconsistent with factual evidence | "You say you kept his note, but the police haven't found anything like that in your room." |
| Response type | | |
| Compliant | The child complies with the attorney's suggestion that disputes the credibility of their testimony. For specific challenges, the child accepts the falsehood of their *current* statement, and accepts the version suggested by the attorney | "L: Did your daddy say he'll buy you a present if you say that man touched you?<br>C: He said he'll buy me a shoe."<br>"L: Now you say your brother was there but earlier you said he wasn't. Now, was he there?<br>C: He wasn't." |
| Resistant | The child resists the attorney's suggestion that disputes the credibility of their testimony. For specific challenges, the child insists on the truthfulness of their current statement, and rejects the version suggested by the attorney | "A: I'm suggesting that you that everything between you two happened with your consent.<br>C: I asked him to stop<br>A: This is the first time you mention shouting. You didn't say that to the police<br>C: But I was shouting." |
| Do not know/ remember | The child replies with "Don't know" or "Don't remember" | "A: Did your mom tell you what to say today?<br>C: I don't know what she said" |
| Nonsubstantive | The child does not give a response to the question, or gives an answer that is not relevant to the topic of the question | "A: This is a lie, isn't?<br>C: I want my mummy." |

one-way analysis of variance (ANOVA) that showed that children's age had a barely nonsignificant effect on the proportion of credibility-challenging questions they received, $F(2, 21.51) = 3.38$, $p = .051$.

Descriptive statistics revealed a trend for children in the youngest age group to receive fewer credibility-challenging questions (≤12 year-olds, $M = 19.73$, $SD = 12.76$) than children in the middle age group (13- to 15-year-olds, $M = 45.39$, $SD = 7.16$), and in the oldest age group (≥16 years old, $M = 61.79$, $SD = .16.64$).

## Frequencies of Children's Responses

Descriptively, children resisted most credibility-challenging questions ($M = .54$, $SD = .25$), and provided compliant responses less often ($M = .27$, $SD = .22$). Do not know/do not remember ($M = .08$, $SD = .10$) and nonsubstantive responses ($M = .08$, $SD = .10$) were infrequent and were, therefore, excluded from the following analyses.

A repeated-measures ANOVA (RM-ANOVA) was conducted to investigate whether children's responses to credibility-challenging questions (within-subjects: comply, resist) differed depending on the children's ages. Analyses revealed a significant main effect for child response, $F(1, 59) = 20.50$, $p < .001$, $\eta_p^2 = .26$, but no significant interaction between child response and age, $F(2, 59) = .11$, $p = .89$, $\eta_p^2 = .004$.

## Challenge Type

Descriptive statistics for all credibility-challenging question types and subtypes (General: lying, conduct, memory, influence,

confusion, alcohol consumption, positive relation to suspect, and consent to sexual acts; Specific: omission, addition, and contradiction), as well as the source of inconsistency (forensic interview, trial, other witness's statement, and factual evidence), are presented in Table 2.

**General and specific challenges.** Questions focused generally on the credibility of young witnesses were far more common ($M = .78$, $SD = .21$) than questions focused on specific inconsistencies ($M = .22$, $SD = .21$). All children were asked at least one general credibility-challenging question, and 67.7% were asked about specific inconsistencies. A two-way RM-ANOVA was conducted to investigate differences between the proportional frequency of credibility-challenging question type (within-subject: general, specific), how children responded (within-subjects: resist, comply), and whether this differed by children's age. Analyses revealed effects for challenge type, $F(1, 59) = 106.19$, $p < .001$, $\eta_p^2 = .64$; and response type, $F(1.56, 91.78) = 57.25$, $p < .001$, $\eta_p^2 = .26$, as well as a significant interaction between challenge type and response type, $F(1, 59) = 18.16$, $p < .001$, $\eta_p^2 = .24$. There were no significant main effects of or interactions with age.

The two-way interaction between challenge type and response type was followed up using 6 paired-sample $t$ tests (adjusted $\alpha$ levels; $p < .008$). Most notably, children were significantly more likely to resist general challenges ($M = .56$, $SD = .24$) than specific challenges ($M = .39$, $SD = .29$). Children resisted general challenges more often than they complied with them ($M = .26$, $SD = .22$), but there was no significant difference between the proportion of specific challenges that children resisted and complied with ($M = .34$, $SD = .25$). There were no significant main effects of or interactions with age.

**General credibility-challenging question subtypes.** In the following analysis, references to alcohol consumption ($n = 26$) were not included because cell frequencies were very low. A two-way RM-ANOVA conducted to investigate potential differences between general challenge subtypes (within-subjects: lie, conduct, memory, influence, confusion, positive relationship with suspect, and sex), children's responses (within-subjects: resist, comply), and children's age with Greenhouse-Geisser correction applied ($\varepsilon = .80$), revealed effects for general challenge subtype $F(4.84, 285.82) = 12.03$, $p < .001$, $\eta_p^2 = .17$, and response type $F(1, 59) = 16.00$, $p < .001$, $\eta_p^2 = .21$. There was also an interaction between the effects of challenge subtype and response type, $F(6, 354) = 18.69$, $p < .001$, $\eta_p^2 = .24$. There were no significant main effects of or interactions with age.

To follow up the main effect for general challenge subtypes, pairwise comparisons were conducted with Bonferroni corrections (adjusted $\alpha$ levels, $p < .002$). Accusations of lying were the most common general challenges ($M = .40$, $SD = .27$), followed by suggestions of influence ($M = .14$, $SD = .20$). The interaction between general challenge subtype and child response was followed up by 21 paired sample $t$ tests to investigate differences in the frequency of resistant responses to general challenges and a further 21 paired sample $t$ tests to investigate differences in the frequency of comply responses (adjusted $\alpha$ levels, $p < .001$).

Credibility-challenges focused on lying ($M = .72$, $SD = .25$) were resisted significantly more often than accusations of poor memory ($M = .35$, $SD = .33$), adult influence ($M = .42$, $SD = .37$), and a positive relationship with the suspect ($M = .41$, $SD = .37$). Suggestions of confusion ($M = .72$, $SD = .37$) were resisted more often than challenges focused on memory. The proportion of comply responses showed a similar pattern: questions focused on lying were less frequently complied with ($M = .08$, $SD = .11$) than suggestions of poor memory ($M = .46$, $SD = .39$), adult influence ($M = .47$, $SD = .40$), and a positive relationship with the accused ($M = .51$, $SD = .42$), while accusations of conduct problems ($M = .37$, $SD = .33$) were more frequently complied with than suggestions of confusion ($M = .18$, $SD = .29$).

**Specific credibility-challenging question subtypes.** Do not know/remember ($n = 280$) and nonsubstantive responses ($n = 290$) were again excluded because cell frequencies were very low. A two-way RM-ANOVA conducted to investigate whether there were any differences between the proportion of specific challenge subtypes posed (within-subjects: omission, addition, and contradiction), how children responded (within-subjects: resist, comply), and whether effects differed with age, revealed a main effect for specific challenge subtype, $F(2, 118) = 20.50$, $p < .001$, $\eta_p^2 = .26$. To follow up the main effect, pairwise comparisons were conducted (adjusted $\alpha$ levels, $p < .02$). References to contradictions ($M = .17$, $SD = .19$) were more common than mentions of omissions ($M = .02$, $SD = .07$) and additions ($M = .04$, $SD = .09$) of details. There were no significant main effects of or interactions with age.

**Source of inconsistency.** Excluding do not know/remember and nonsubstantive responses, a two-way RM-ANOVA was conducted to investigate whether the source of inconsistency (within-subjects: forensic interview, trial, other witness statement, and evidence) affected children's responses (within-subjects: resist, comply), and whether this effect differed with children's age. Main effects were found for source of inconsistency, $F(3, 177) = 9.12$, $p < .001$, $\eta_p^2 = .13$, and response type, $F(1, 59) = 4.79$, $p = .03$, $\eta_p^2 = .08$. There was a significant interaction between source of inconsistency and response type, $F(3, 177) = 8.09$, $p = .01$, $\eta_p^2 = .12$. There were no significant main effects of or interactions with age.

Table 2
*Proportions of Different Types of Challenges Made by Defense Lawyers*

| Challenge subtypes | Mean | *SD* | *N* |
|---|---|---|---|
| General challenge | .78 | .21 | 2,101 |
| Lying | .40 | .27 | 1,092 |
| Conduct | .03 | .08 | 82 |
| Memory | .03 | .06 | 82 |
| Influence | .14 | .20 | 382 |
| Confusion | .06 | .13 | 164 |
| Alcohol | .01 | .09 | 55 |
| Positive relationship | .04 | .07 | 109 |
| Consent to sexual acts | .07 | .14 | 191 |
| Specific challenges | .23 | .21 | 628 |
| Omission | .02 | .07 | 55 |
| Addition | .04 | .09 | 109 |
| Contradiction | .17 | .19 | 464 |
| Source of inconsistency | | | |
| Police statement | .14 | .18 | 382 |
| Trial | .02 | .04 | 55 |
| Other witness statement | .05 | .09 | 136 |
| Physical evidence | .02 | .05 | 55 |

To follow up the main effect for source of inconsistency, pairwise comparisons were conducted with Bonferroni corrections (adjusted α levels, $p < .008$). Forensic interviews were referred to significantly more often ($M = .14$, $SD = .18$) than statements made during the trial ($M = .02$, $SD = .04$), statements made by other witnesses ($M = .05$, $SD = .09$), and factual evidence ($M = .02$, $SD = .05$). The two-way interaction between source of inconsistency and children's responses was followed up with 6 paired sample $t$ tests for children's resist responses, and 6 paired sample $t$ tests for children's comply responses (adjusted α levels, $p < .004$). Credibility-challenging questions focused on children's forensic interviews ($M = .43$, $SD = .30$) and statements made by other witnesses ($M = .48$, $SD = .35$) were resisted more frequently than challenges focused on factual evidence ($M = .29$, $SD = .27$).

**Question content.** Credibility-challenging questions most often focused on central (80.6%) rather than peripheral (19.4%) content. A two-way RM-ANOVA conducted to investigate whether the proportional frequency of question content affected children's responses (within-subjects: resist, comply), and whether this effect differed with children's age revealed main effects for question content, $F(1, 59) = 7.46$, $p = .008$, $\eta_p^2 = .12$, and response type, $F(1.61, 94.85) = 19.66$, $p < .001$, $\eta_p^2 = .25$. There was also a significant interaction between question content and response type, $F(1.81, 106.60) = 5.62$, $p = .02$, $\eta_p^2 = .09$. There were no significant main effects of or interactions with age.

The two-way interaction between question content and response type was followed up with 6 paired-sample $t$ tests (adjusted α levels, $p < .008$). Children were significantly more likely to resist central questions ($M = .58$, $SD = .25$) than peripheral questions ($M = .37$, $SD = .36$). Resistance was significantly more common in response to central questions than compliance ($M = .23$, $SD = .21$), but there was no difference between the proportion of resistant and compliant responses ($M = .27$, $SD = .34$) to peripheral questions. There were no other significant differences.

## Discussion

In support of our first hypothesis, defense lawyers in Scotland challenged the credibility of witnesses approximately as frequently during cross-examination (14.9% of all questions asked) as had their peers in New Zealand (12%; Zajac et al., 2003). Consistent with our expectations and prior reports (Zajac et al., 2003), there was no statistically significant difference between the proportion of credibility-challenging questions asked of younger and older children. However, descriptive analyses showed a clear trend toward increasing numbers of credibility-challenging questions in trials of older children, demonstrating some adjustment of questioning style according to age as in studies showing that lawyers question younger children less suggestively.

Consistent with our third hypothesis, children were less likely to resist challenges focused on peripheral content than challenges focused on central content, but the difference in the proportion of compliant responses was not significant. This decrease in the proportion of resistant responses might occur because such challenges place unrealistic demands on children's memory by focusing on nonsalient content (Goodman, Hirschman, Hepps, & Rudy, 1991; Paz-Alonso & Goodman, 2016; Roebers & Schneider, 2000; Schwartz-Kennedy & Goodman, 1999). Our fourth hypothesis suggesting that younger children would provide more compliant responses than older children were not confirmed, suggesting that younger and older children were equally able to resist challenges to their credibility.

Exploratory analyses revealed that challenges aimed at the reliability or sincerity of children in general were much more common than references to specific inconsistencies; accusations of lying constituted 40% of all credibility-challenging questions asked. These findings are in accordance with children's reports of their experiences on the witness stand (Eastwood & Patton, 2002; Plotnikoff & Woolfson, 2009). Suggestions of influence by parents or investigators were also frequent (see also Davies et al., 1997), and resulted in a higher proportion of compliant responses than did accusations of lying and confusion. Although challenges focused on poor memory, conduct problems, and a positive relationship with the accused were rare, children also complied frequently with these suggestions. Perhaps children comply more readily with suggestions that they have difficulty remembering, been influenced by adults, behaved affectionately toward the alleged abuser, or exhibited conduct problems because they do not understand that their responses are just as likely to undermine their credibility as compliance with accusations of lying and confusion.

These findings might help inform the development of guidelines regarding the types of challenges that can appropriately be used when questioning alleged victims of child sexual abuse in court. Because cross-examination is an essential component of a fair trial, lawyers should not be forbidden to challenge the credibility of child witnesses but should be encouraged to do so using questions that children can reasonably be expected to understand, given their levels of cognitive, linguistic, and emotional functioning. High levels of resistance to general challenges and challenges focused on central content suggest that child witnesses can resist credibility-challenging questions when the aim and content of these challenges is clear.

However, specific challenges and questions focused on peripheral content were associated with less resistance and more compliance, indicating that children might find it difficult to recognize the credibility-challenging intent of, or respond appropriately, to questions that emphasize children's poor recall of very specific and often nonsalient events or conversations, likely placing unrealistic demands on children's memories. Inconsistencies regarding peripheral details are often part of children's truthful memories of autobiographical events (e.g., Fivush, Peterson, & Schwarzmueller, 2002; Fivush & Schwarzmueller, 1998), and do not necessarily indicate fabrication or coaching. Interviewing children about a childhood event each year when they were between 3 and 8 years old, Fivush and Schwarzmueller (1998) found that 70% of the information provided by 8-year-olds was never mentioned before, although these details were consistent with parental reports of the event. This finding indicates that the omission of previously mentioned details and addition of new details might be a natural consequence of children's shifting focus when repeatedly remembering events. According to "fuzzy trace theory" (Brainerd & Reyna, 2004), inconsistencies might also arise in the accounts of children who have been abused repeatedly because they associate general features characterizing most occurrences of a repeated event ("gist" information) with the wrong instance. Perhaps as a result, when children were asked to describe their experience of play sessions, mock jurors rated children who described repeated events as less honest, less confident, less cognitively competent,

and less credible than children describing a single experience (Connolly, Price, Lavoie, & Gordon, 2008). In addition, challenges focused on the consistency of children's statements in repeated forensic interviews might be particularly difficult, as they rely on children's source monitoring abilities to distinguish between the content of numerous similar conversations, sometimes with the same person (see Lyon & Stolzenberg, 2014). Monitoring the source of highly similar conversations is a task that children and adults find very difficult in experimental situations (Lindsay, Johnson, & Kwon, 1991; Roberts & Blades, 1999; Stolzenberg & Lyon, 2014b), because of the repeated nature of the conversations (Roberts & Powell, 2001), and the need to distinguish between the individual's past intentions to disclose information and the information actually disclosed (Foley, Johnson, & Raye, 1983).

Despite the scholarly literature identifying the diverse factors that might underlie children's inconsistent statements, surveys of legal professionals, mock jurors, and actual jurors reveal a very high level of correspondence between perceptions of the consistency and credibility of children's testimonies (Cashmore & Trimboli, 2006; Eastwood & Patton, 2002; Spencer & Flin, 1993). In a study by Cashmore and Trimboli (2006), jurors frequently justified their judgments regarding the truthfulness of children's testimony on the basis of the consistency of details about dates, places, or clothing, and these judgments in turn predicted their verdicts. Another study by Connolly, Price, and Gordon (2009) found that, although inconsistencies were mentioned in 75% of the judicial comments regarding verdicts in historical child sexual abuse cases, and were twice as common when there were acquittals rather than convictions, complainants' emotional behavior during the events and at the trial were more strongly associated with verdicts than the frequency of inconsistencies in witnesses' statements. However, the mean age of witnesses at the time of the trial in Connolly et al.'s study was 25.93 years, which could indicate that adults were more consistent witnesses than children, or that juries place a higher emphasis on consistency when assessing the testimony of child witnesses. Therefore, the disproportionate number of self-contradictions defense lawyers refer to using credibility-challenging questions focused on peripheral details or repeated conversations could have strong negative effects on fact-finders' perceptions of the truthfulness of children's testimony and on trial outcomes.

Because of the discrepancy between the scholarly literature and mock jurors' beliefs with regard to both children's memory capacities and the dynamics of sexual abuse, legal professionals should consider steps to educate juries about the disproportionate effect of questions suggesting these common stereotypes on the credibility of children's testimony (Cashmore & Trimboli, 2006). Those who have studied juries' biased conceptions of the truthfulness of rape complaints have suggested that fact-finders should be warned about the falsehood of the common stereotypes defense lawyers might use when attempting to prove that the complainant's behavior is inconsistent with the profile of a "real rape victim" (Ellison, 2007; Zydervelt et al., 2016). Such warnings by judges or expert witnesses might also be issued in trials involving child witnesses, informing juries about the potential effects of repeated abuse on children's memory, and the difficulty they might have remembering specific conversations with different disclosure recipients, including the police, or nonsalient peripheral details about the abuse (Davies et al., 1997). In addition, the negative effects associated with specific challenges and challenges focused on peripheral details might also be reduced by preparing children for the credibility-challenging techniques the defense might utilize, without discussing the specific content of witnesses' testimony (Ellison, 2007; Zydervelt et al., 2016). When asked to report their experiences for the Measuring Up study, 69% of child witnesses said they had met the prosecutor either in advance or on the day of trial before court proceedings began (Plotnikoff & Woolfson, 2009). However, they reported that these meetings often involved little more than an introduction and a short explanation of basic court rules. Perhaps these meetings could be restructured to include a fuller discussion of the challenges associated with being cross-examined and potentially productive responses. Finally, if further results from field research and analogue studies also show that children are unable to understand and appropriately respond to these types of challenges, the use of such questions in the courtroom might be restricted. Restrictions on defense lawyers' ability to cross-examine witnesses are controversial because of fears of compromising the defendant's right to a fair trial, including "to examine or to have examined witnesses against him and to obtain the attendance and examination of witnesses on his behalf under the same conditions as witnesses against him" (Article 6, Council of Europe, 1952; European Convention on Human Rights). However, judges need to find a balance between protecting the rights of the defendant and enabling witnesses to provide testimony to the best of their abilities, which can include limiting defense lawyers' ability to ask child witnesses questions that are likely to produce unreliable answers (section 5.4.97, Equal Treatment Bench Book, Judicial Studies Board, 2013). This study identified the types of questions children might be unable to answer appropriately, and underlined the importance of reminding children to say "I do not know/remember" confidently, instead of attempting to answer questions focused on details they do not remember.

## Limitations and Further Research

While the present study has provided an in-depth analysis of lawyers' use of credibility-challenging techniques and children's responses to these challenges, it also has a number of limitations, and leaves several questions open for future research. First, because this was a field study (of children's testimonies of alleged sexual abuse), the accuracy of children's responses could not be assessed; we could not determine whether children's compliance reflected false responses to highly suggestive challenges, or changes to details that were initially inaccurate or false. Although credibility-challenging and suggestive questions tend to elicit many correct-to-incorrect changes (Fogliati & Bussey, 2014; Zajac & Hayne, 2003a, 2006), no laboratory study has yet investigated whether children's credibility can be challenged without decreasing the accuracy of their testimony, a promising area for future laboratory work.

Second, the mean age of children in our sample was relatively high ($M$ = 13.4 years) and children under 11 years of age were underrepresented in our sample, which included no preschoolers and only four children under the age of 9. This might have prevented meaningful age-based comparisons, and limited the validity of conclusions about younger children. Although studies of developmental differences in susceptibility to suggestion in courtroom contexts is yet inconclusive, research in developmental psychology indicates that children's understanding of covert im-

plications (e.g., Beal & Flavell, 1984) and hidden intentions does not fully develop until later childhood, and this may increase the likelihood that they will comply when responding to questions they do not recognize as credibility-challenging. There is a need for studies involving a larger sample of children under 11 years old to clarify whether such developmental differences in children's responses to credibility-challenging questions indeed exist. Also, it might be fruitful to examine whether and how question types and children's responses in court are associated with the case verdicts, although preliminary analyses revealed no significant associations in the present study, perhaps because there were many more cases that resulted in convictions than acquittals. A better-matched sample designed to investigate these research questions may yield different results.

Third, we included only children's resist and comply responses in statistical analyses, because of the infrequency of "don't know," "don't remember," and nonsubstantive or nonrelevant responses. Further research is needed to investigate how these responses affect children's credibility. In addition, alternative measures of children's ability to provide evidence might also be considered when investigating developmental differences. Analyses of forensic interviews have often suggested that the largest difference between the testimonies of preschoolers and older children lies in the length of and richness of their accounts rather than in their accuracy or consistency (e.g., Hershkowitz, Lamb, Orbach, Katz, & Horowitz, 2012; Lamb, Sternberg, & Esplin, 2000; Lamb, Sternberg, Orbach, Esplin, Stewart, & Mitchell, 2003). Credibility-challenging questions might have a negative effect on children's productivity in court because of the stressfulness of being portrayed as dishonest despite telling the truth (Plotnikoff & Woolfson, 2009; Yamamoto & Byrnes, 1987), and this effect might be particularly damaging to the testimonies of younger children, who tend to provide less detailed responses in most circumstances. Therefore, future research addressing potential differences between the effects of credibility-challenging questions on the testimonies of preschoolers and older children might benefit from analyzing children's productivity, measured by the richness of their responses to lawyers' questions, and the number of new details they provide at different points in their testimony, in addition to the proportion of self-contradictions or compliant responses.

Fourth, studies of forensic interviewing have identified several factors that influence children's susceptibility or resistance to suggestion that might play a role in credibility-challenging techniques, but were not addressed in the present study. An investigation of the linguistic complexity of credibility-challenging questions might be particularly useful, because some defense lawyers have admitted to using intentionally complex language to confuse children (Henderson, 2002). In addition to the complex syntax (Brennan & Brennan, 1988) and legal language (Carter, Bottoms, & Levine, 1996; Flin, Stevenson, & Davies, 1989; Saywitz, Jaenicke, & Camparo, 1990) often used in the courtroom, younger children might find some less obvious aspects of lawyers' language confusing as well, such as the ambiguous use of the verbs "ask" and "tell" (Walker, 1999; Lyon & Stolzenberg, 2014), or question tags, which often accompany credibility-challenging questions (Walker, 1999). Although the presence of a supporter was found to have no associations with children's responses to credibility-challenging questions in the present study, further investigations of the effects of a less intimidating courtroom environment might also be useful; analyses of forensic interviews (Hershkowitz, Orbach, Lamb, Sternberg, & Horowitz, 2006), and analogue studies (Carter et al., 1996) have shown that interviewer support has positive effects on the quality of children's evidence.

Fifth, both the types of credibility-challenging questions lawyers asked and children's ability to resist these challenges might be influenced by children's age, when the alleged abuse occurred, and the length of delay between the alleged abuse and the trial. Although experimental studies have shown that children and adolescents can recall highly salient traumatic events accurately and in detail several years after they took place, nonsalient peripheral details were less well remembered after long delays (Peterson, 2011, 2015). Experimental studies have shown the deleterious effects of delay on memory to be most prominent when recalling events that occurred in early childhood (Bauer & Larkina, 2014). Future research could investigate whether lawyers challenge children's memory more frequently when the abuse happened a long time ago and when children were very young at the time of the abuse, as well as how these factors influence children's ability to resist these challenges.

Finally, it would be interesting to compare these results with studies of the frequency and types of credibility-challenging questions lawyers ask in other countries. Because of similarities in defense lawyers' use of suggestive (Andrews et al., 2015, California; Andrews & Lamb, in press, Scotland) and credibility-challenging questions (Zajac et al., 2003) in several Common Law jurisdictions, the results of the current study might apply to other countries as well. However, certain unique features of the Scottish legal system (e.g., the requirements of precognition and corroboration) might lead lawyers to rely on different cross-examination strategies than those used in other jurisdictions. In addition, how children's credibility is challenged in countries with inquisitorial legal systems should also be explored in future research.

## Conclusion

The present study provided an in-depth analysis of the types of credibility-challenging questions defense lawyers ask, and the factors that influence children's ability to resist these challenges. Our results suggest that all types of credibility-challenging questions are not equally appropriate when questioning alleged victims of alleged child sexual abuse; although children resisted the majority of challenges to their credibility, they frequently complied with questions focused on the consistency of the statements they made in the course of the police investigation and the trial and questions focused on peripheral details in their testimony. Further studies are needed to establish whether the high rates of compliance associated with these types of challenges are unique to credibility-challenging questions, or might apply to other forms of suggestion as well, and to investigate whether the challenges children were able to resist might affect their ability to give testimony in other ways, for example, by reducing the richness and length of their responses.

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