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Expert Testimony in Child Sexual Abuse Cases: The Effects of Evidence, Coherence and Credentials on Juror Decision Making

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SUMMARY

Psychological experts have been used increasingly to testify in child sexual abuse cases, yet little research has investigated what specific factors make experts effective. This study examined the potential effects that credentials, evidence strength and coherence may have on juror decision making. Sixty-four mock jurors read cases of child sexual abuse, followed by experts' testimony and rated guilt of the defendant, effectiveness of the expert testimony and credibility of the victim. Evidence strength and coherence of the testimony affected all dependent variables, and the interaction was significant. Guilt ratings of the defendant were lower and the victim was rated as less credible when both evidence strength and coherence were low. The credentials of the expert, however, had negligible impact. These findings indicate that experts can be effective and impact jurors when testimony is either high in coherence or high in evidence. Copyright © 2009 John Wiley & Sons, Ltd.

Expert testimony has come to play an important role in child sexual abuse litigation (Ceci & Hembrooke, 1998; Saunders, 2001). In fact, the prevalence of psychological expert witnesses in alleged child sexual abuse cases is increasing around the globe (Connolly, Price, & Read, 2006; Rotzien, 2002; Saunders, 2001). This relatively high reliance on psychological experts in child sexual abuse cases is partially explained by the frequent lack of physical, medical or corroborative evidence to support the child witness' statements (Gabora, Spanos, & Joab, 1993; Kovera & Borgida, 1996; Mason, 1991; Morrison & Greene, 1992; Sagatun, 1991; Sales, Shuman, & O'Connor, 1994). Psychological experts are also sought to enhance the child's credibility (Crowley, O'Callaghan, & Ball, 1994) or to provide jurors with information that may assist them in making a conclusion about whether a child has been abused (Ceci & Hembrooke, 1998; Crowley et al., 1994; Gabora et al., 1993; Kovera, Levy, Borgida, & Penrod, 1994). For example, social workers, clinicians and researchers are asked to testify about issues such as the behavioural and psychological markers of sexual abuse, the reliability of a child witness' statements and the interpretation of a child's drawings and behaviours (Ceci & Hembrooke, 1998).

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The majority of experimental work to date has examined the impact of having a psychological expert witness at various points in the trial (Crowley et al., 1994; Cutler, Dexter, & Penrod, 1989; Hosch, 1980; Loftus, 1980; Maass, Brigham, & West, 1985; Raitz, Greene, Goodman, & Loftus, 1990; Spanos, Dubreuil, & Gwynn, 1991) or having the testimony directly related to the case material (Brekke & Borgida, 1988; Brekke, Enko, Clavet, & Seelau, 1991; Fox & Walters, 1986; Gabora et al., 1993; Kovera, Gresham, Borgida, Gray, & Regan, 1997). Overall, it appears that when a psychological expert testifies for the prosecution and provides statements that support or confirm abuse, the likelihood of conviction of the defendant is higher compared to when no expert is used (Bottoms, Golding, Stevenson, Wiley, & Yozwiak, 2007; Gabora et al., 1993; Kovera et al., 1994). Moreover, jurors are more likely to rate the defendant as guilty when (a) the evidence is directly linked to the case as opposed to referring to the academic literature in general (Brekke & Borgida, 1988; Gabora et al., 1993; Kovera et al., 1997), and (b) is presented earlier rather than later in the trial (Brekke & Borgida, 1988).

Regarding the degree of effectiveness of psychological expert testimony, a meta-analysis conducted on 22 studies (Nietzel, McCarthy, & Kern, 1999) revealed only a small effect size for expert testimony in general, $r = .15$, and expert testimony pertaining to child witnesses in particular is $r = .12$. This small effect size led us to speculate about those aspects of psychological experts that are most useful or beneficial for the prosecution in child sexual abuse cases. More specifically, which factors may moderate the effect of a psychological expert's statements on juror decisions to increase the likelihood of successful prosecution?

When considering the broader literature on group decision making, there are three factors related to the expert and the experts' testimonial account in child sexual abuse cases that may impact on juror decisions. First, the expert's credentials are likely to play a role. For example, Hurwitz, Miron, and Johnson (1992) found that the credentials of the expert were a deciding factor in the perception of the expert's credibility as based on real-life expert testimony statements. These statements were analysed via a factor analysis, indicating that one of the two factors that was predictive of a juror perceiving an expert as having high credibility was in the case of the expert having high credentials, e.g. by having an affiliation with an academic institution. Similarly, Cooper, Bennett, and Sukel (1996) found that jurors were more willing to award compensation to a victim in a product liability case after expert testimony (in support of compensation) was given from an expert with higher as opposed to lower credentials, but only when the testimony was complex. Complex testimony was defined by the technicality of the expert's language, whereas an expert with higher credentials was defined as an expert who had advanced degrees from several highly prestigious universities, was highly published, and had served as an editor-in-chief.

Further, we propose that the strength and coherence of the evidence are both likely to positively impact juror decisions about a defendants' guilt in child sexual abuse cases. For example, Visher (1987) conducted post-trial interviews with 360 jurors in forcible sexual assault cases and found that evidence variables accounted for 34% of the variance in jurors' judgments. In contrast, extralegal factors such as victims', defendants' or jurors' characteristics and attitudes only accounted for an additional 10% of the variance. Skolnick and Shaw (2001) reported that the presentation of strong evidence (e.g. a positive match between a shoeprint at the crime scene and rare sneaker owned by the defendant) produced a high number of mock juror guilty verdicts in a homicide case compared to weak evidence (e.g. shoeprint at crime scene matched a popular sneaker). While these two studies did not

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involve child sexual abuse *per se*, they indicate that strength of evidence affects jurors' judgments of guilt, whereby high strength of evidence leads to higher guilty verdicts.

It is well documented that the coherence or cohesion of the information presented in a text is critical for comprehending narrative and expository text that is presented in either print, spoken monologues or interactive conversation (Graesser, Jeon, Yang, & Cai, 2007; Graesser, McNamara, Louwerse, & Cai, 2004; Graesser, Singer, & Trabasso, 1994; McNamara & Kintsch, 1996; van den Broek, Lorch, Linderholm, & Gustafson, 2001). According to the constructionist theory of comprehension (Graesser et al., 1994), the comprehender attempts to construct a coherent mental model as he/she searches after meaning, both at local and global levels. Local coherence refers to how well contiguous elements and constituents are interpreted, chunked and structured in a text, whereas global coherence refers to how lower level and intermediate chunks of information are organized into higher order conceptualizations. If a text lacks global coherence, a person may abandon the search-after-meaning and settle for interpreting local chunks of information that are loosely connected. Sometimes the text may be so incoherent at a global level that the comprehender fails to detect contradictions and incompatible information (Chinn & Brewer, 1993; Otero & Kintsch, 1992). Therefore, the coherence of a text is critical to its comprehension, and it is predicted that the same will hold true for the text (or testimony) that is presented by a psychological expert.

Empirical research on the effects of coherence in legal cases (e.g. Voss, Wiley, & Sandack, 1999) has indicated that a prosecutor's verbal presentations in a mock homicide case are more effective in leading to guilty verdicts when they are more coherent and chronologically sequenced. Similarly, Pennington and Hastie's (1986, 1988, 1990, 1993a, 1993b) story model of jury decision making suggests that coherence is a determining factor in how jurors integrate the evidence presented before them. Jurors tend to construct a story of 'what happened'. Moreover, if a juror constructs a story that is high in coherence, this story will appear more acceptable to the juror as a potential explanation of what happened than a story that is low in coherence. While the prior research was tested in the context of a mock homicide and assault case, coherence of the testimony may also be a critical variable in the evaluation of child sexual abuse cases.

The current study extended the prior work by examining the impact of an expert's credentials, the strength and coherence of evidence and the potential interaction of these factors on mock juror decisions in alleged child sexual abuse cases. Prior research offers several potential suggestions with regard to the interaction between strength of evidence and coherence. For example, Voss et al. (1999) observed an additive effect between these two factors. That is, guilt ratings for the defendant were higher when testimony presented by the prosecution was based on both high quality evidence and high coherence. However, Voss and Van Dyke (2001) found that when jurors are presented with convincing or undisputable evidence, the impact of coherence of the prosecutor's account was negligible. That is, when an expert's testimony is based on strong evidence, how coherently the account is presented may play less of a role than when the testimony is based on weaker evidence. Thus, the effect of coherence on jury decision making may be mediated by the strength of evidence presented. Voss and van Dyke (2001) explained this difference in interaction due to the nature of evidence. That is, when evidence is ambiguous, there is an additive effect between the quality of the evidence and its coherence. In contrast, when the evidence of the case is less ambiguous, the quality of the evidence overrides the potential effect of coherence. Since cases of child sexual abuse may be less likely to be based on

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'strong' evidence, it is plausible that the nature of the interaction will indicate an additive effect between coherence and evidence strength, as found in Voss et al. (1999).

An alternative hypothesis is based on constraint satisfaction models which propose that coherence-driven mechanisms play a critical role in how jurors perceive testimony presented by an expert (Simon & Holyoak, 2002). According to constraint satisfaction models, complex decision making is driven by excitatory and inhibitory links between the units, i.e. potential variables or parts of an explanation. The units in our study would include aspects of evidence, coherence and credibility. In order to achieve an overall coherent interpretation of a complex situation, some units which support each other may become so active that they end up inhibiting their rivals. Indeed, past research has proposed that parallel distributed processes can account for social cognitive decision making (Read & Marcus-Newhall, 1993). Simon and Holyoak (2002) found that mock jurors generated coherent explanations via activation changes on which their subsequent decisions were based. That is, the differential impact of experts of varying authority may be reduced when the strength of the evidence is strong or undisputable and the testimony is coherent. Such a finding would also be compatible with Horowitz, Bordens, Victor, Bourgeois, and ForsterLee's findings (2001). They reported that mock jurors were more likely to award in favour of the plaintiff if the evidence presented by the expert was clear, i.e. evidence favoured one side versus the other, and if the expert used highly technical language. This interaction was mediated by the credibility of the expert. That is, mock jurors tended to judge the expert who used technical language as more credible than those who used ambiguous language.

However, no research, at present, has examined the interaction between strength of evidence and coherence in the context of the experts' credentials. The importance of examining the interaction between these variables in cases of alleged child sexual abuse is heightened by the fact that the strength of evidence and the credentials of expert witnesses can vary markedly in these cases. Contrary to crimes such as homicide, in which most experts are forensic or scientific experts, in CSA cases the psychological expert's credentials may vary from undergraduate university degrees (in the case of 'front-line' workers in child sexual abuse assessment and investigation) to PhDs (in the case of most social science academics) (Ceci & Hembrooke, 1998).

As previous studies suggest that information processing can be mediated by the credentials (or credibility) of the expert (Cooper et al., 1996; Horowitz et al., 2001), we predict that the interaction between evidence strength and coherence will also be mediated by the credentials of the expert. That is, when the expert has high credentials and presents strong evidence, the coherence of the testimony may play less of a role in juror decision making. Alternatively, when the expert has low credentials or presents a case based on weak evidence, we propose that the role of coherence will have a greater effect on the dependent variables.

METHOD

Participants

Participants were 16 males and 48 females undergraduate students participating in the University of Memphis subject pool and serving as mock jurors. All participants were eligible to serve on a jury, i.e. they were at least 18 years of age and US citizens.

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Participants were told during the informed consent that they were able to leave at any point with no disadvantage to them if they felt uncomfortable about the nature of the cases. Participants either received course credit or extra credit for their courses. Prior ethics approval was received.

Design

The present study used a $2 \times 2 \times 2$ factorial, repeated measures design. The independent variables were credentials of the expert, coherence of the message and strength of evidence. These variables were presented in the context of a psychological expert testifying in an alleged child sexual abuse case, in which the expert testified on behalf of the victim. The three independent variables were manipulated as within-participants variables. Correspondingly, there were eight versions of the expert testimony that could be generated from all possible combinations of the independent variables (high/low), e.g. high evidence, high coherence, high credentials; high evidence, low coherence, high credentials; low evidence, low coherence, low credentials, etc. Each participant received all of the eight possible combinations of the independent variables. The assignment of the eight conditions to each of the cases was counterbalanced across participants according to an 8×8 Latin square. The ordering of cases was randomly determined for each participant separately. The participants then judged the guilt of the offender, the effectiveness of the expert testimony and victim credibility.

Materials

Eight separate stories of cases, of approximately 500 words each (or similar length) were created for this experiment. The stories of child sexual abuse were modelled after real cases (Ceci & Bruck, 1995) and victims were described as 3–7 year-olds (in six of the scenarios). To broaden the age range, one scenario was based on a 13-year-old victim and one on a 15-year-old victim. In each scenario, a description of the allegation was followed by the testimony of the expert. The base scenario was held constant across all manipulations. For an example of a base scenario please see Appendix I.

After each base story, there were eight versions of the expert testimony that were generated from all possible combinations of the independent variables. Two sentences (or propositions) were inserted to represent each one of the independent variables. For example, in the high coherence condition, two sentences or propositions were inserted that reflect high coherence.

Credentials

The credentials of the expert were manipulated by the expert having high versus low credentials and expertise. For example, a high degree of publications in the field versus a low degree of publications represented high versus low credentials.

An example excerpt from the *high credentials* condition would be:

> An expert witness, Michelle Keys, who received her PhD in clinical psychology from Yale University (=high credentials), testified to the account. Dr Keys is the author of several books on child sexual abuse and has published numerous articles (=high credentials).

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An example excerpt from the *low credentials* condition would be:

> An expert witness, Michelle Keys, who received her Master's degree in Counselling from Jones University (=low credentials) testified to the account. Ms Keys is informed about the literature and has worked in the field of child sexual abuse for 2 years (=low credentials).

Strength of evidence

Strength of evidence was manipulated by how much the evidence presented by the expert supported the case that the child had been abused. Generally, in the condition of high strength evidence, the expert testified that a child matched clinical and behavioural symptoms of child sexual abuse, such as bedwetting and nightmares. In a few cases, the expert also referred to medical symptoms if these were known to the expert. In the case of low evidence, no physical evidence was presented, or the clinical symptoms were given an alternative explanation. The expert might have claimed that bedwetting and nightmares are typical symptoms of abused children, however, that they are also as likely to occur in a child who has never been abused. In some instances, the degree of likelihood of the evidence to be pertinent was manipulated via percentages.

An example for the high evidence condition would be:

> In addition, the fact that Kelly was very disturbed after the incident, seems to indicate that it is very plausible that something traumatic had happened. Dr/Ms Keys also stated that sexually abused children often show symptoms like nightmares and bedwetting, as Kelly did.

An example of the low evidence condition would be:

> In addition, the fact that Kelly was very disturbed does not have to indicate that she was actually sexually abused, she just could have watched a film including sexual activity and imagined that it was real. Dr/Ms Keys also stated that sexually abused children often show symptoms like nightmares and bedwetting, as Kelly did, however, children often display the same symptoms although they have never been sexually abused.

Coherence

Coherence was varied by the presence/absence of an inconsistency or in the overall testimony of the expert. In a high coherence testimony, the testimony 'hung well' together without any contradictory information, that is, the testimony presented by the expert was globally coherent. For example:

> She claims that children can have fantasies about sexual interactions, and that children rarely confuse dreams with reality at that age. She stated that a child would not be able to create a story about a man ejaculating, because children are usually not familiar with this topic. In addition, the fact that Kelly was very disturbed after the incident, seems to indicate that it is very plausible that something traumatic had happened. Dr/Ms Keys also stated that sexually abused children often show symptoms like nightmares and bedwetting, as Kelly did. In response to being asked about the likelihood of truthfulness of the statement, she claimed that accounts of children are oftentimes true, even though there might be no corroborating evidence.

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In contrast, in the case of low coherence, a statement from the expert was conflicting with a previously mentioned sentence. That is, in a low coherence testimony, the testimony contained conflicting information, as in the following example (propositions are tagged as P):

> She claims that children can have fantasies about sexual interactions, and that children rarely confuse dreams with reality at that age (P 1). She stated that a child would indeed be able to create a story about a man ejaculating, since children may be exposed to these things from early on in kindergarten, as well as from the media (=low coherence, contradicts P 1). Dr/Ms Keys also stated that sexually abused children often show symptoms like nightmares and bedwetting, as Kelly did (P 1). In response to being asked about the likelihood of truthfulness of the statement, she claimed that accounts of children are oftentimes true, but that it is difficult to evaluate this if there is no corroborating evidence (low coherence, contradicts P 1).

Procedure

Each participant read eight case vignettes dealing with child sexual abuse to receive every manipulation of independent variable. Each participant received each one of the base scenarios followed by the expert's testimony and counterbalancing was used to assign conditions to each scenario. After reading each case individually, the participant filled out a brief questionnaire, which asked to rate the testimony with regard to four variables. Participants were able to refer back to the case while rating it; however, after finishing one case, participants were not permitted to refer to the previous one.

The questionnaire asked participants to rate the guilt/innocence of the defendant on a dichotomous as well as continuous scale. This method was implemented to make the study more naturalistic as well as more sensitive. On the one hand, a dichotomous guilty/not guilty decision tends to resemble actual juror decision more closely. On the other hand, some studies have found an effect for expert testimony on a continuous scale as a more sensitive measure, but failed to detect any differences on a dichotomous scale (Crowley et al., 1994; Cutler et al., 1989; Loftus, 1980; Maass et al., 1985). The dichotomous rating determined whether the subject thought that the defendant was guilty/not guilty. The continuous scale used the following values (6) guilty; (5) somewhat guilty; (4) not sure, but probably guilty; (3) not sure, but probably not guilty; (2) somewhat not guilty; to (1) not guilty.

The effectiveness of the expert testimony was assessed by asking the participant how effective the expert was, with ratings of (6) effective; (5) somewhat effective; (4) not sure but more effective; (3) not sure, but more ineffective; (2) somewhat ineffective; (6) ineffective. Victim's credibility ratings were determined by asking the participant how credible the victim was and assessed *via* ratings of (6) credible; (5) somewhat credible; (4) not sure, but more credible; (3) not sure, but more non-credible; (2) somewhat non-credible; (1) non-credible.

Manipulation check

To test whether participants were sensitive to the manipulation, a manipulation check was conducted prior to data collection by asking participants to rate all three independent variables. In order to test *coherence*, participants were asked to rate how well the testimony

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'hung together'. The results indicate that there was a main effect for coherence ($F(1, 63) = 8.12$, MSE = 1.05, $p < .01$). The participants were also asked to rate the credentials of the expert witness by asking how much experience the expert had. The results indicated that the participants were sensitive to the credentials of the expert ($F(1, 63) = 23.74$, MSE = 2.27, $p < .001$). Further, the participants were asked in regard to the quality of the arguments that the expert presented. The results indicate that participants were sensitive to the strength of the evidence ($F(1, 63) = 6.15$, MSE = 0.83, $p < .05$).

RESULTS

Table 1 displays the results of mean ratings of guilt of the defendant, the effectiveness of the expert and the credibility of the victim. A series of 2 (high coherence *vs*. low coherence) × 2 (strong evidence *vs*. weak evidence) × 2 (high credentials *vs*. low credentials) within subject, repeated measures analyses of variance (ANOVAs) were conducted on each dependent measure. A level of $p < .05$ was used when presenting statistically significant results.

For the participants' ratings regarding the *defendant's guilt*, the results from the repeated measures ANOVA revealed main effects for evidence ($F(1, 63) = 21.14$, MSE = .92, $p < .001$, $\eta^2 = .251$) and coherence ($F(1, 63) = 10.07$, MSE = 1.18, $p < .01$, $\eta^2 = .138$). Ratings of the defendant's guilt were significantly higher for stronger ($M = 5.30$, SD = 0.63) than weaker evidence ($M = 4.91$, SD = 0.77) and for passages higher in coherence ($M = 5.25$, SD = 0.71) than lower in coherence ($M = 4.95$, SD = 0.74). The credentials of the expert had no effect ($F(1, 63) = .006$, MSE = 1.39, $p = .94$, $\eta^2 = .000$). In addition, there was a significant interaction between evidence and coherence ($F(1, 63) = 9.614$, MSE = 1.24, $p < .01$, $\eta^2 = .132$), as depicted in Figure 1. Planned comparison *t*-tests were performed on evidence and coherence collapsed across credentials. The results (with Bonferroni correction, adjusted p for significance = .0083 (.5/6 comparisons)) indicated that a narrative with low evidence and low coherence ($M = 4.60$, SD = 1.09, SEM = .136) yielded significantly lower guilt ratings than (1) a narrative with high

Table 1. Mean ratings of the dependent variables

Dependent	Credentials high				Credentials low			
	Evidence high		Evidence low		Evidence high		Evidence low	
	Coherence		Coherence		Coherence		Coherence	
Variable	High	Low	High	Low	High	Low	High	Low
Guilt	5.17	5.37	5.23	4.61	5.43	5.22	5.19	4.60
STD	1.28	.98	1.15	1.45	.97	1.09	1.26	1.63
Expert effectiveness	5.20	5.05	5.19	5.02	5.20	5.08	5.05	4.67
STD	1.32	1.21	1.03	1.05	1.09	1.07	1.18	1.55
Victim credibility	5.08	5.16	5.12	4.66	5.00	5.30	5.14	4.52
STD	1.31	.94	1.14	1.38	1.36	.87	1.1	1.68
Guilty verdict proportion	79%	87%	78%	64%	89%	87%	86%	64%

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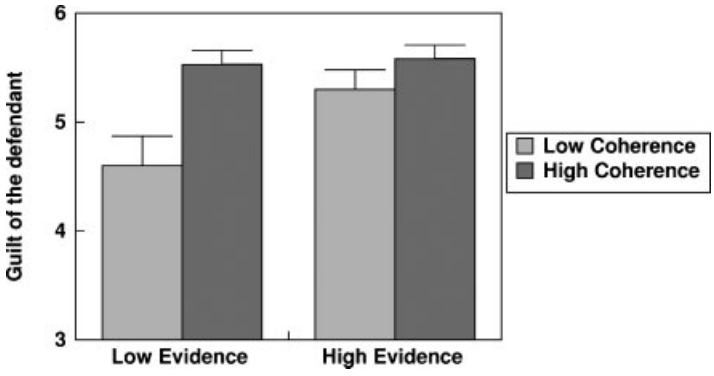

Figure 1. Guilt as a function of evidence and coherence

evidence and high coherence ($M = 5.30$, SD = .85, SEM = .107), ($t(1, 63) = 5.06$, $p < .001$), (2) a narrative with high evidence and low coherence ($M = 5.30$, SD = .72, SEM = .090), ($t(1, 63) = 5.09$, $p < .001$) and (3) a narrative with low evidence and high coherence ($M = 5.21$, SD = .88, SEM = .110) ($t(1, 63) = 3.97$, $p < .001$), while the latter three groups did not differ from one another. That is, the interaction indicated that when both evidence and coherence were low, guilt ratings of the defendant were lower than in any other condition. The credentials of the expert did not interact with any of the other variables.

A Wilcoxon signed rank test was performed on the binary dependent variable *verdict*, that is, jurors' final verdict on whether the defendant was guilty, or not guilty. Table 1 reports the proportion of times that participants chose a guilty verdict. The data revealed similar results to those of the continuous variable, guilt of the defendant. Specifically, while keeping the credentials of the expert high, an expert witness presenting a passage with low quality evidence, low coherence yielded significantly fewer guilty verdicts ($M = 64\%$) than when presenting a passage with high evidence and high coherence ($M = 79\%$) ($Z = 2.24$, $p < .05$). In addition, a low evidence, low coherence and high credentials passage led to fewer guilty verdicts ($M = 64\%$) than a passage with high quality evidence, high coherence and low credentials ($M = 89\%$) ($Z = 3.27$, $p < .005$). Guilty verdicts were also lower for a passage with low quality evidence, low coherence and low credentials ($M = 34\%$) than a passage with high quality evidence, low coherence and low credentials ($M = 13\%$) ($Z = 2.99$, $p < .005$), and a passage with low quality evidence, high coherence and low credentials ($M = 14\%$) ($Z = -2.71$, $p < .01$). Overall, and similar to the results of the continuous variable *guilt of the defendant*, these results indicate that a passage with low coherence *and* low quality evidence yields fewer guilty verdicts than a passage that is high in either coherence or quality of evidence.

For the participants' ratings regarding the *effectiveness of the expert*, the results of the repeated measures ANOVA revealed a marginally significant main effect for evidence ($F(1, 63) = 3.11$, MSE = .96, $p < .081$, $\eta^2 = .047$) and a statistically significant main effect for coherence ($F(1, 63) = 5.52$, MSE = .99, $p < .05$, $\eta^2 = .081$) Expert effectiveness ratings were marginally higher for passages high in evidence ($M = 5.13$, SD = 0.73) than low in evidence ($M = 4.98$, SD = 0.73) and significantly higher for passages high in coherence ($M = 5.16$, SD = 0.71) than low in coherence ($M = 4.95$, SD = 0.75). The credentials of the expert had no effect ($F(1, 63) = .86$, MSE = 1.91, $p = .36$, $\eta^2 = .013$).

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For the participants' ratings regarding the *credibility of the victim*, the results of the repeated measures ANOVA revealed a significant main effect for evidence ($F(1, 63) = 16.78$, MSE = .57, $p < .001$, $\eta^2 = .21$) and a marginally significant main effect for coherence ($F(1, 63) = 2.90$, MSE = 1.43, $p < .094$, $\eta^2 = .044$). Victim credibility ratings were significantly higher for passages high in evidence ($M = 5.13$, SD = 0.65) than low in evidence ($M = 4.86$, SD = 0.78) and marginally higher for passages high in coherence ($M = 5.09$, SD = 0.85) than low in coherence ($M = 4.90$, SD = 0.72). The credentials of the expert had no effect ($F(1, 63) = .02$, MSE = 1.49, $p = .89$, $\eta^2 = .00$).

In addition, there was a significant interaction between evidence and coherence ($F(1, 63) = 17.26$, MSE = 1.35, $p < .005$, $\eta^2 = .168$). Planned comparison *t*-tests were performed on evidence and coherence collapsed across credentials, using the pooled error term of the interaction. The results (with Bonferroni correction, adjusted *p* for significance = .0083 (.5/6 comparisons)) indicated that a narrative low in evidence and low in coherence ($M = 4.59$, SD = 1.06, SEM = .132) yielded significantly lower victim credibility ratings than (1) a narrative with high evidence and high coherence, ($M = 5.04$, SD = .98, SEM = .123) ($t(1, 63) = 3.50$, $p = .001$), (2) a narrative with high evidence and low coherence ($M = 5.23$, SD = .77, SEM = .010), ($t(1, 63) = 4.49$, $p < .001$) and (3) a narrative with low evidence and high coherence ($M = 5.13$, SD = .89, SEM = .11) ($t(1, 63) = 3.73$, $p < .001$). The latter three groups did not differ from one another. The interaction is identical to the one found for the guilt of the defendant, indicating that when both evidence and coherence were low, victim credibility ratings were lower than in any other condition. The credentials of the expert did not interact with any of the other variables.

DISCUSSION

Overall, the findings of our study were partially consistent with our initial hypotheses. As predicted, *evidence* and *coherence* of the expert's testimony had an impact on jury decision making in child sexual abuse cases. Both the strength of the evidence and the coherence of the testimony impacted on the guilt of the offender, the effectiveness of the expert, and the credibility of the victim. The interaction between evidence and coherence significantly affected the guilt of the offender and the credibility of the victim, but not the effectiveness of the expert. In general, the nature of the interaction differed from the expected results. On the basis of Voss et al.'s findings (1999), we hypothesized that there would be an additive effect of evidence and coherence on the guilt of the offender. However, our results indicated that the effect of coherence on juror perceptions and decisions was lower only when both coherence *and* strength of evidence were both low. When psychological expert testimony was less coherent and based on little evidence, it produced fewer guilty ratings and decreased the perception of the victim's credibility. Further, inconsistent with our initial hypothesis, the credentials of the expert had no effect whatsoever on the mock jurors' perceptions or decision making. Importantly, these findings were robust; they were revealed irrespective of whether the dependent variables were the guilt of the defendant, the effectiveness of the expert or the credibility of the victim.

In addition, our results tended to support a constraint satisfaction approach to jury decision making. This can be observed when considering the forth and eighth cell for the guilt of the defendant in Table 1. While the level of guilt in all eight conditions was relatively high, the statistical pattern of the first four and second four means is almost identical. This pattern indicates that only when presented with both low (inhibitory)

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coherence and low (inhibitory) evidence (irrespective of the level of credentials of the expert) the level of guilt of the defendant decreases (inhibitory). In other words, creating an algorithm for a network representing the decision making of the jurors in this study would have to be programmed in such a way that there is a relatively high baseline level of guilt—moreover, as soon as either coherence or evidence nodes (or both) are high (excitatory) this would then lead to higher (excitatory) levels of guilt.

As mentioned previously, Visher (1987) indicated in her study that evidence alone accounted for 34% of the variance in jurors' judgments of guilt, while extralegal factors, such as defendant and juror characteristics and attitudes, accounted for 10% only. It is interesting to note in our study that although evidence alone yielded the highest effect size on the guilt of the defendant, the interaction between evidence and coherence was critical. That is, while extralegal factors contributed only a small amount to juror decision making in Visher's study, our findings suggest that perhaps an additional extralegal variable, *coherence*, may be a critical factor in juror decision making. Such a finding is also in line with Pennington and Hastie's story model of jury decision making (1986, 1988, 1990, 1993a, 1993b).

In relation to the credentials of the expert, other research has also pointed to the possibility of a null finding. For example, a recent study by Levett and Kovera (2008) found that the credentials of the psychological expert, as measured, for example, by number of publications and academic employment, had no effect on juror ratings in a child sexual abuse case. Cooper et al. (1996) found that the credentials of the expert only had an effect on mock juror decision making if the testimony presented by the expert was highly complex. When the testimony was less complex, there was no effect for the credentials of the expert. With regards to the robustness of our findings, as mentioned above, a manipulation check confirmed that jurors were sensitive to the manipulations of all independent variables. Moreover, the results of this check indicated that the manipulation of credentials yielded the greatest difference of all independent variables, indicating that the credentials of the expert was the variable the jurors were most sensitive to.

Overall, our results imply that an expert who is permitted on the basis of his/her practical expertise may be just as effective as an expert who is testifying on the basis of his/her academic credentials, provided that the expert presents testimony based on either high evidence or coherence, or both. Further, both of these types of expert are now permitted to testify, based on the Kumho decision (Kumho Tire Co., Ltd. V. Carmichael, 119 S.Ct. at 1167, 1999). The current study thus lends support to this legal decision.

The generalizability of the current findings may be limited in several ways. First, the fact that the present study used jurors rather than juries may potentially have influenced the results. As group decision making is different from individuals' decision making, mock juries may have decided differently regarding these vignettes. Second, the expert was not cross-examined. In an actual trial, a cross-examination may have a significant impact on the perception of the expert. That is, jurors may become more sensitive to the credentials of the expert by being able to compare for example, one expert testifying for the prosecution and one testifying for the defense. Third, the present study employed a within-subjects design that is less commonly used in the expert testimony literature. Due to using this type of design, differences that were found may have been exaggerated.

Further, research has indicated that perceptions of child witnesses differ across victim age (Bottoms et al., 2007), which was not controlled for in this study. However, an item analysis of the current study showed no differences across vignettes, indicating that differences in jurors' judgments were due to the manipulations of the independent

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variables. Finally, the use of university students as mock jurors raises speculation about the representativeness of the sample and their similarity to those selected in actual child abuse trials. A recent review by Bornstein (1999) indicated that out of 26 studies that compared undergraduate students versus community members as mock jurors, only five studies found any differences between the two populations.

In sum, the present study showed that only when both the quality of evidence and the coherence are low, the testimony of a psychological expert witness testifying about child sexual abuse is less effective and persuasive. The credentials of the expert had no effect. More research will be needed to determine what it is that makes an expert witness' account effective and what specific factors impact on juror decision making to increase the likelihood of successful prosecutions. Such information will ultimately provide judges and prosecutors with more insight into the selection of expert witnesses and assist in the knowledge of what it is about an expert that facilitates improved juror decision making.

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APPENDIX I

On 29 August 1995 John de Blanc was charged with accounts of having sexually abused his neighbour's daughter Kelly Jones, 7 years. The defendant is a 45-year-old male, who is well known by the plaintiff. Kelly Jones claims that the defendant invited her over for some ice-tea on 16 July 1994. He then suggested for her to take her shirt off because it was so hot. She claims that he suggested going to the bedroom because he wanted to show her something. He told Kelly that he was her friend and suggested that friends should play together. Playing together involved her taking all her clothes off. Kelly said she refused, but Mr DeBlanc claimed that she should be a good girl and do what she is told. She claims that after taking her clothes off, he opened his zipper and pushed her onto the bed. He then told her to touch his penis. The plaintiff refused, but Mr de Blanc claimed that she should obey because otherwise he would tell her mother that she was not a good girl. She then started touching his penis. She claimed that he took her hand and started rubbing on his penis with it. She remembered that this went on for about 10 minutes until the defendant ejaculated onto the bed. He then told her to put her clothes back on and said that if she told anyone that he would tell her mother that she had been a bad girl and that he would hit her. Kelly went home, and her mother claims that she noticed that Kelly seemed very disturbed. She asked Kelly what happened due to which she gave the aforementioned account. Shortly after, Mrs Jones noticed that Kelly started bedwetting and having nightmares regularly. The defendant claims that he knows the plaintiff very well, since they have been neighbours for about 5 years. He also claims that he invited Kelly over for some ice-tea, but he claims that none of the other accounts ever took place. He claims that the accusations were born out of her fantasy, and that he would never molest a child.

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