Using Pretest-Posttest Research Designs to Enhance Jury Decisions

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Abstract:

When lay jurors are unfamiliar with key factual issues presented in criminal trials, the risk of wrongful acquittal or conviction can be avoided by providing educative information about these issues to assist juries in understanding the evidence. This study illustrates a systematic research program devised to increase jury knowledge about child sexual abuse (CSA). The effectiveness of an educative intervention in the form of specialised knowledge presented via expert evidence that targeted common jury misconceptions about CSA was tested in the context of a simulated videotrial. A pretest-posttest research design was applied to measure mock-jurors' CSA knowledge gains attributable to the intervention and the extent to which accurate CSA knowledge predicted verdicts. In addition, individual juror decisions were compared with jury decisions following group deliberation. Results revealed that many jurors endorsed CSA misconceptions and that their knowledge predicted credibility assessments of the complainant and their verdicts. However, decisions by juries following group deliberations produced an unexpected increase in acquittals despite increased CSA knowledge after exposure to expert witness evidence. Applications of this research paradigm can assist courts and parties in determining the most effective method to use to enhance jury decisions in criminal cases involving specialised knowledge beyond the expertise of most lay jurors.

Keywords: child sexual abuse, jury deliberation, expert evidence, pretest-posttest research design

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Introduction

Although a comparatively small proportion of criminal cases in Australia are tried before a jury,[1] child sexual abuse (CSA) cases comprise a disproportionally high percentage amongst them.[2] The Australian petit jury consists of a group of twelve lay citizens who are empanelled to determine whether, based on the evidence presented at trial, the accused is guilty as charged beyond reasonable doubt.[3] At the close of the trial and before jury deliberations commence, the judge orally summarises the relevant evidence, the applicable law, and presents jury directions on how to apply the legal principles to the facts in evidence.[4] Following their deliberations, which are conducted in private and are nondisclosable, the jury has to render a unanimous or majority (one dissenter) verdict on each count.[5]

The verdicts that juries reach are presumed to reflect interpretations and inferences from the evidence and coherent explanatory narrative accounts developed by juries during group deliberation from the facts presented at trial,[6] although direct observations and measures of real deliberating juries are prohibited by law. Due to these restrictions, with a few rare exceptions, most research on jury processes and decision making has been conducted with simulated trials and mock juries.

Jurors' individual attitudinal biases influence their decisions, however, these predispositions are expected to balance out in a randomly selected jury of twelve, and to be less influential on verdict than considerations of the evidence. This was confirmed by controlled experimental studies in the form of jury trial simulations showing that the evidence presented at trial predicted about 80% of verdict, while juror demographics, attitudes and biases exerted comparatively little or no influence.[7] However, early studies were typically conducted with

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[1] Jane Goodman-Delahunty, 'The Jury Box and the Urn: Containing Our Expectations' (2015) *Pandora's Box: Crime, Justice and the People* 9; Jane Goodman-Delahunty and David Tait, 'Lay Participation In Legal Decision Making in Australia and New Zealand: Jury Trials and Administrative Tribunals' in Martin F Kaplan and Ana M Martin (eds), *Understanding world juries through psychological research.* (Psychology Press, 2006) 47.

[2] Annie Cossins and Jane Goodman-Delahunty, 'Misconceptions or Expert Evidence in Child Sexual Assault Trials: Enhancing Justice and Jurors' 'Common Sense'' (2013) 22 *Journal of Judicial Administration* 171.

[3] Jane Goodman-Delahunty et al, 'Practices, Policies and Procedures that Influence Juror Satisfaction in Australia' (Report, Research and Public Policy Series No 87, Australian Institute of Criminology, 2008) 87.

[4] James RP Ogloff, Johnathan Clogh and Jane Goodman-Delahunty, 'Enhancing Communication with Australian and New Zealand Juries: A Survey of Judges' (2007) 16 *Journal of Judicial Administration* 235.

[5] Mark Nolan and Jane Goodman-Delahunty, *Law and Psychology in Australia* (Thompson Reuters, 2015).

[6] Kara MacKillop and Neil Vidmar, 'Decision-Making in the Dark: How Pre-Trial Errors Change the Narrative in Criminal Justice Trials' (2015) 90(3) *Chicago-Kent Law Review* 957.

[7] Robert J MacCoun, 'Experimental Research on Jury Decision Making' (1989) 244 *Science* 1046.

mock jurors who did not deliberate to verdict as a group, i.e., the unit of analysis was the individual mock juror and not juries comprised of groups of mock jurors. In more recent research, greater emphasis has been placed on the deliberation process of juries as a group and the ways in which the collective wisdom of the group or the knowledge of individual jurors impacts the verdict.

Factual controversies in cases of child sexual abuse

When the key issues in evidence are outside of the scope of common jury knowledge, the potential for widespread misconceptions or misinterpretations of the evidence to influence the ultimate verdict reached by a group of lay jurors increases.[8] In CSA cases, the child complainant is frequently the sole prosecution witness because corroborative evidence in form of an eyewitness, medical or forensic evidence, is typically lacking. Thus, the factual evidence in controversy in CSA trials is typically based on the word of one witness against that of another. In these trials, jurors have to assess the oral testimony of the child complainant, and to determine which of the parties is more credible.[9] In accordance with the principle of *in dubio pro reo*, juries are loathe to rely on uncorroborated evidence of a complainant, especially a child complainant, and tend to acquit Compared to other types of criminal cases, rates of acquittal in CSA cases are disproportionally high.[10] Statistically, these cases pose a greater likelihood of wrongful acquittal, rather than wrongful conviction. One consequence of the impunity enjoyed by predatory child sex offenders is persistent reoffending against the same or other potential victims.

In response to concerns about the impunity of child sexual offenders, in many countries around the globe, special commissions of inquiry have been established to evaluate policies and procedures applied in the criminal justice process that make it difficult to achieve justice in cases of child sexual abuse. For example, in 2015, in the United Kingdom, a special

[8] Ian Freckelton et al, *Expert Evidence and Criminal Jury Trials* (Oxford University Press, 2016).

[9] Australian Institute of Judicial Administration, *Benchbook for Children Giving Evidence in Australian Courts.* (2015)Natalie J Gabora, Nicholas P Spanos and Amanda Joab, 'The Effects of Complainant Age and Expert Psychological Testimony in a Simulated Child Sexual Abuse Trial' (1993) 17(1) *Law and Human Behavior* 103..

[10] Judy Cashmore et al, 'The Impact of Delayed Reporting on the Prosecution and Outcomes of Child Sexual Abuse Cases' (Report prepared for the Royal Commission into Institutional Responses to Child Sexual Abuse, August 2016); Jacqueline Fitzgerald, 'The Attrition of Sexual Offences from the New South Wales Criminal Justice System' (Crime and Justice Bulletin No 92, NSW Bureau of Crime Statistics and Research, January 2006)udith Oliver, 'The Legislation Changed, What About the Reality?' (2006) 6(1) *Queensland University of Technology Law and Justice Journal* 55; Commonwealth, Royal Commission into Institutional Responses to Child Sexual Abuse, *Criminal Justice Report* (2017) Executive Summary and Parts I-II. Executive Summary and Parts I-II.

statutory inquiry into public failings in CSA cases was initiated, and is anticipated to take at least five years. In Australia, a Royal Commission into Institutional Responses to Child Sexual Abuse was established in 2013, and issued its final report in 2017.[11] This Commission implemented an evidence-based inquiry, and sponsored more than 100 research projects on related topics, including a study of jury decision making in cases of historical child sexual abuse. The focus of that study was the extent to which three particular forms of unfair prejudice (characterological prejudice, accumulation prejudice and factual conflation) arise in joint trials in which tendency evidence is presented.[12] Nonetheless, that study provided insight into the relationship between individual versus group knowledge about CSA, and the extent to which jury group knowledge was related to the ultimate verdict.

Interventions to Reduce Juror Bias

Past surveys of community members, including jury eligible citizens in several countries, revealed that lay knowledge of CSA was poor, and the presence of a gap between research findings on CSA and what many lay jurors believed. Jury simulation studies of CSA cases disclosed a robust relationship between juror susceptibility to misconceptions about CSA and individual mock-jurors' verdicts to acquit.[13] In other words, the greater the incidence of misconceptions, the more likely jurors were to acquit the defendant, whereas jurors with more accurate CSA knowledge were more likely to render a verdict to convict.

In the criminal justice process, the collective deliberations of twelve jurors in a group about the trial evidence is presumed to operate as a legal safeguard against jury errors based on the cumulative common knowledge of those jurors to appropriately interpret the evidence admitted at trial. The random selection of a group of twelve jurors from different walks of life in the relevant community, with different types of education and life experience, is anticipated to balance social predispositions, attitudes and biases that individual jurors may bring to court. Thus, the deliberation process is expected to reduce the impact on verdicts of individual juror biases. However, when the key factual issues in the case are widely misunderstood, the benefit of group deliberation in reducing the influence of individual

[11] Commonwealth, Royal Commission into Institutional Responses to Child Sexual Abuse, *Final Report* (2017).

[12] Jane Goodman-Delahunty, Anne Cossins and Natalie Martschuk, '*Jury Reasoning in Joint and Separate Trials of Institutional Child Sexual Abuse: An Empirical Study,*' (Report prepared for the Royal Commission into Institutional Responses to Child Sexual Abuse, May 2016).

[13] Jane Goodman-Delahunty, Anne Cossins and Kate O'Brien44(2) *Australian and New Zealand Journal of Criminology* 196..

biases on verdicts may be constrained. Accordingly, in cases in which specialised knowledge is required to understand and appreciate the facts in evidence, the criminal justice system permits educative interventions which are intended to reduce juror reliance on common misconceptions and biases in assessing the evidence adduced at trial. The most common educative intervention is expert witness testimony; however specialised knowledge may also be presented to jurors in the form of judicial instructions or directions about a topic. For example, to alert jurors to factors which can influence the reliability of an eyewitness to a crime, expert witnesses may offer evidence about general memory processes and ways in which memory errors arise. The same or similar information may also be presented to the jury by the presiding judge in the form of special jury directions. Similar provisions have been implemented in CSA cases to narrow the gap between common misperceptions about CSA and research findings on the topic.[14]

Legislative provisions enabling educative interventions in CSA cases have been implemented in all Australian jurisdictions and in the Uniform Evidence Act.[15] For example, expert evidence on child development and behaviour[16] or judicial directions on these topics can be introduced. The content of these educative interventions is specialised knowledge that falls outside of the common sense and common experience of most jurors. Generally, the content of the specialised knowledge is derived from empirical findings on the counter-intuitive behaviour of CSA victims, children's suggestibility in response to questioning by adults, and the reliability of their accounts.

The effectiveness of the different types of potential educative interventions was compared in a meta-analytical review of empirical literature conducted two decades ago.[17] The results of these analyses revealed that the introduction of expert evidence yielded a small but

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[14] Jane Goodman-Delahunty, Anne Cossins and Kate O'Brien, 'A Comparison of Expert Evidence and Judicial Directions to Counter Misconceptions in Child Sexual Abuse Trials' (2011) 44(2) *Australian and New Zealand Journal of Criminology* 196, 199. See *Evidence Regulations 2007* (NZ) s 49.

[15] *Evidence Act 1995* (Cth), *Evidence Act 1995* (NSW), *Evidence Act 2001* (Tas), *Evidence Act 2008* (Vic), *Evidence Act 2011* (ACT), *Evidence (National Uniform Legislation) Act 2011* (NT), *Evidence Act 2004* (NI).

[16] Anne Cossins, 'Children, Sexual Abuse and Suggestibility: What Laypeople Think They Know and What Literature Tells Us' (2008) 15(1) *Psychiatry, Psychology and Law* 153; Anne Cossins and Jane Goodman-Delahunty, 'The Application of the Uniform Evidence Law to Delay in Child Sexual Assault Trials' in Andrew Roberts and Jeremy Gans (eds), *Critical perspectives on the Uniform Evidence Law* (Federation Press, 2017) 104.

[17] Michael T Nietzel, Denis M McCarthy and Monika J Kern, 'Juries: The Current State of the Empirical Literature' in Ronald Roesch, Stephen D Hart, and James RP Ogloff (eds) *Psychology and Law: The State of the Discipline* (Springer, 1999) 23.

significant effect on verdict. This effect remained significant when the topic of the expert testimony was child witnesses. The effects on verdict were comparable between groups of mock jurors who deliberated and groups of nondeliberating mock jurors.

Arguably, educative information provided by an expert might be a more effective and preferable method of exposing juries to the relevant specialised knowledge than the same educative content presented by the presiding trial judge because the former is subjected to cross-examination, and juries have the option to accept or reject the expert evidence. By contrast, the same evidence presented by the judge requires the judge to endorse a particular psychological theory, and the jury is directed to follow it without the benefit of cross examination.[18] Mock juror responses to these two types of educative interventions have been tested empirically. The present article uses the example of educative information provided by an expert witness to illustrate a general methodological approach to assess the effectiveness of such interventions in jury trials.

Research Questions

This article describes a comprehensive research design applied in the context of a larger project funded by the Australian Research Council to understand and improve jury decisions on CSA cases.[19] The aims of this methodological exposition using some data drawn from that project is to isolate in relation to the CSA evidence the extent to which (a) pretrial individual juror biases influenced jury decisions; (b) educative information presented by an expert witness influenced juror and jury CSA knowledge; and (c) deliberation influenced the verdicts.

Comprehensive Research Design

The following sections describe the set of research procedures and the research design that were applied to address the complex problem of juror bias and jury decision-making in CSA trials. An innovation of the systematic research program was the comparison of decisions of individual jurors versus deliberating groups, using realistic trial materials and actual nonempanelled jurors as opposed to students or citizens, increasing the ecological validity of the findings. Although some meta-analyses showed few differences in juror decisions by

[18] *People v Wright* 248 Cal Rptr 600 (1988), II C1 [7a].

[19] Discovery Project 110103706 awarded to Jane Goodman-Delahunty and Anne Cossins, "Countering Misconceptions in Child Sexual Assault Cases with Expert Evidence and Judicial Directions".

students versus nonstudents,[20] in sentencing decisions, student mock-jurors were more lenient than their nonstudent counterparts.[21] The extent to which student and nonstudent deliberations are comparable is unknown as studies comparing students and nonstudents did not include jury deliberation.

Participants

Participants were nonempanelled NSW jurors who participated in simulated CSA trials conducted on court premises in the greater Sydney area. Participation was in-person, followed by completion of an individual posttrial survey questionnaire. Participants were randomly assigned to render either an individual decision (nondeliberating jurors) or to deliberate for up to 90 minutes in groups of 8-12 persons (deliberating jurors) before rendering a verdict.

Trial Simulation Materials

The trial simulation materials based on actual CSA cases and described a case of intrafamilial CSA. The defendant was the grandfather of a female child complainant, aged 11 years at the time of the alleged offence. The allegation was a single penetrative offence without the use of force. The complainant disclosed the abuse immediately to her grandmother after she was asked what had happened.[22]

The professionally-acted video-trial included opening and closing arguments of prosecution and defence, direct and cross-examination of the complainant, a corroborative witness (her grandmother) an expert witness (in some versions), and judicial summation. The duration of the mock-trial ranged between 45 and 55 minutes (with educative information from the expert witness).

The educative intervention was included in the simulated videotrial. Specifically, the psychological expert witness provided information about common CSA misconceptions including empirical findings on counter-intuitive behaviour of CSA victims, children's suggestibility in response to questioning by adults, and the reliability of their accounts (about

[20] Brian H Bornstein, 'The Ecological Validity of Jury Simulations: Is the Jury Still Out?' (1999) 23(1) *Law and Human Behavior* 75.

[21] Hubert S Field and Nona J Barnett, 'Simulated Jury Trials: Students vs 'Real' People as Jurors' (1978) 104(2) *The Journal of Social Psychology* 287.

[22] The trial scripts used in the experimental study were written by Professor Annie Cossins, with input from the first author.

2,200 words). The expert informed the jury that: (1) delays in reporting the abuse and continued contact with the offender, particularly when the offender is close relative of the child, are common; (2) symptoms and behaviours of children who are sexually abused are diverse; (3) physical or forensic evidence of the abuse is generally absent; (4) children are generally reliable witnesses; and (3) incomplete or inconsistent accounts are common. The expert reported that the complainant's behaviour was consistent with that of a sexually abused child, but did not state that the complainant had been abused.

Dependent measures

The survey consisted of a questionnaire that measured common CSA misconceptions,[23] perceived credibility[24] of the child complainant and (if applicable) psychological expert witness, perceived factual culpability of the defendant[25] and verdict[26]. Further, participants provided their perceptions of the evidence and the trial in open-ended responses. Video-recordings of the jury deliberations were transcribed for content analyses.

Data Analyses

Quantitative data were subject to descriptive and inferential statistical analyses, and analyses were conducted to compare test scores between- and within-participants. Data provided by jurors following group deliberations violated the assumption of independence for inferential analyses. Therefore, multilevel analyses were used to take into account dependent data by allocating individual jurors' data to jury groups. At level 1, individual scores are expressed as group means plus the individual deviation of the group means, presenting within-group level analyses. At level 2, variability of group means is modelled and expressed as a grand mean plus the deviation of the group means, presenting between-group level analyses.[27] The

[23] The CSA misconception items were categorized into three main topic groups: (a) evidentiary features of child sexual offences; (b) children's responses to sexual abuse; and (c) children's suggestibility and reliability. Participants indicated their agreement with each of the items on a 5-point rating scale (1=strongly disagree; 5=strongly agree). Jane Goodman-Delahunty, Natalie Martschuk and Anne Cossins, 'What Australian Jurors Know And Do Not Know About Evidence Of Child Sexual Abuse' (2017) 41 *Criminal Law Journal* 86.

[24] The Witness Credibility Scale is a 20-item semantic differential scale with four factors: Likeability, Confidence, Trustworthiness, and Knowledgeability. Participants rated the complainant and if applicable the expert on each of the paired adjectives using a 10-point rating scale, e.g. from 1=dishonest to 10=honest; from 1=illogical to 10=logical. Stanley L Brodsky, Michael P Griffin and Robert J Cramer, 'The Witness Credibility Scale: An Outcome Measure for Expert Witness Research' (2010) 28(6) *Behavioral Sciences and the Law* 892.

[25] Participants indicated the likelihood that the complainant was sexually abused by her grandfather (1=very unlikely; 5=very likely).

[26] Guilty vs not guilty.

[27] Christian Geiser, *Data Analysis with Mplus* (Guilford Press, 2013).

advantage of these analyses is that they provide an indication of the extent to which the outcome is attributable to jury groups as opposed to the experimental intervention.

Pretest-Posttest Research Design

The study design was based on the randomised Solomon four-group pretest-posttest research design (see Table 1). This design involves two experimental (intervention) groups (Groups 1 and 3 in Table 1[28]) and two control (no intervention) groups (Groups 2 and 4 in Table 1). All four groups provide posttest measures, whereas only Groups 1 and 3 in Table 1 provide pretest measures. This methodological approach allows a statistical comparison of posttest measures, the computation of differences between pretest and posttest measures, while controlling for pretest effects, and their interaction. More specifically, results of the Intervention groups are compared with those of the No intervention (or control) groups. To assess the influence of juror pretrial biases, both pretest and posttest measures are gathered from an Intervention and a No Intervention control group (Groups 1 and 2 in Table 1[29]). To assess as to whether the experimental procedure of taking the pretest measure influences the posttest measure, for example, by sensitising the mock jurors to these issues, only posttest measures are collected from Groups 3 and 4, as shown in Table 1. In sum, this design allows tests of the magnitude of the effects attributable to the pretesting procedure separate and apart from the intervention.[30]

Table 1. *Solomon four-group pretest-posttest research design*

Experimental group	Pretest measure	Intervention	Posttest measure
1	✓	✓	✓
2	✓	-	✓
3	-	✓	✓
4	-	-	✓

[28] Jane Goodman-Delahunty, Natalie Martschuk and Anne Cossins'Programmatic Pretest-Posttest Research to Reduce Jury Bias in Child Sexual Abuse Cases' (2016) 6(2) *Oñati Socio-Legal Series* 283. <http://ssrn.com/abstract=2786072><http://ssrn.com/abstract=2786072>

[29] Jane Goodman-Delahunty, Natalie Martschuk and Anne Cossins'Programmatic Pretest-Posttest Research to Reduce Jury Bias in Child Sexual Abuse Cases' (2016) 6(2) *Oñati Socio-Legal Series* 283. <http://ssrn.com/abstract=2786072><http://ssrn.com/abstract=2786072>

[30] Dimiter M Dimintrov and Phillip D Rumrill Jr, 'Pretest-posttest Designs and Measurement of Change' (2003) 20 *Work* 159.

An important feature of this design is the random assignment of participants to each experimental group (as opposed to procedures followed in a quasi-experimental design which may be similar without random assignment of participants to experimental groups). Random assignment ensures that each participant is allocated to one of the experimental groups at the same probability. This procedure decreases the likelihood of systematic differences between the experimental groups and thus avoids various types of selection biases. Consequently, any differences observed in the results between the groups can be attributed to the experimental manipulation, in this example, the expert witness evidence.

The advantages of this systematic research design include reduced error variance, that is, a reduction in the proportion of the variance in the results that is attributable to extraneous factors or measurement imprecision and not to the independent variable.[31] Other advantages are increased internal validity, and the possibility to test causation. Internal validity is the extent to which an experiment is free from flaws in its structure and the results can be attributed to the true nature of the phenomenon in issue.[32] This affects the reliability of the results obtained under controlled conditions with respect to the cause-and-effect relationships among variables.

Assessing Juror Knowledge and Biases

First step before testing the interventions is to develop a valid measure of juror biases. Therefore, a questionnaire was developed to assess jurors' CSA misconceptions. A series of questions was drafted based on a comprehensive literature research to identify the most commonly endorsed CSA misconceptions and the extent of discrepancies between the knowledge of CSA experts and laypersons. The selected set of positively and negatively worded questions was administered to a group of non-empanelled jurors, and an item analysis was conducted to identify more precisely what jurors know and do not know about CSA.[33] The results of these item analyses revealed that positively worded items were more robust than negatively worded counterpart items, due to the instability of the latter in conjunction with the positive and negative poles of the rating scale. Negatively worded items appeared to confuse participants in using the scale, resulting in within-participant response

[31] American Psychological Association, *APA Dictionary of Psychology* (2nd ed, 2015) 382.

[32] American Psychological Association, *APA Dictionary of Psychology* (2nd ed, 2015) 553.

[33] Jane Goodman-Delahunty, Natalie Martschuk and Anne Cossins, "What Australian Jurors Know And Do Not Know About Evidence Of Child Sexual Abuse" (2017a) 41 *Criminal Law Journal* 86.

inconsistencies and more extreme variation in responses.[34] From the original set of 26 items 18 were used to assess their respective difficulty level. Table 2 displays examples of items of different difficulty levels that were included in the questionnaire. Items were identified as easy when a substantial proportion of eligible jurors (55%) correctly responded to an item, and difficult when 45% or more expressed uncertainty or incorrectly responded to an item.

Table 2. *Pretest item analysis*

Misconception	**Uncertain**	**Error**	**Sum**
Children who are sexually abused display strong emotional reactions afterwards.	33.5	44.8	78.3
Children aged 7-8 years are easily manipulated to give false reports of sexual abuse.	40.0	25.4	65.4
A medical examination almost always shows whether or not a child was sexually abused.	26.1	27.2	53.3
A sexually abused child typically cries out for help and tries to escape.	26.1	19.5	45.6
Children who change their reports of sexual abuse were probably lying in the first place.	25.9	9.7	36.6
A child who has been sexually abused will tell someone soon afterwards.	13.7	7.7	21.4

Note. Agreement denotes greater susceptibility to CSA misconceptions.

The nine most difficult items, namely those with a combined rate of uncertainty and error rate that exceeded 45% or more, were retained for validation analyses. Specifically, multivariate statistical analyses were conducted to test the factor structure (factor analysis) and predictive validity of the questionnaire.[35] The factor analysis yielded a two-factor structure of the

[34] Ibid.

[35] For all further analyses the item values were reversed so that a higher number indicated greater knowledge about CSA, thus lower level of CSA misconceptions. Jane Goodman-Delahunty, Natalie Martschuk and Anne Cossins 'Validation of the Child Sexual Abuse Knowledge Questionnaire' (2017) 23(4) *Psychology, Crime and Law* 391..

questionnaire: Factor 1 represented the Impact of Sexual Assault on Children, including the psychological and physical consequences or lack thereof (five items), Factor 2 represented the Contextual Influences on Report (four items). Further analyses revealed the predictive validity of the questionnaire: the fewer the juror misconceptions about CSA, the more likely jurors were to perceive the child complainant as credible, and the more likely they were to convict the defendant. The final nine-item questionnaire was used in a series of experimentally controlled interventions aimed at increasing jurors' knowledge about CSA.

Measures to Improve Juror Knowledge

The following example applied a more complex variation of the Solomon four-group pretest-posttest design, in which the effectiveness of (1) group deliberation and (2) educative intervention provided by a psychological expert on juror decisions was tested. Table 2 shows the different experimental groups, mean pretest and posttest CSA knowledge scores, and juror verdict.

Table 2. *Juror CSA knowledge and verdict following (a) jury deliberations and (b) expert evidence*

Experimental Group	***N***	$M_{Pretest}$	$M_{Posttest}$
1a. Expert evidence, no deliberation	108	28.1	31.0
1b. Expert evidence, deliberation	109	28.7	31.2
2a. No educative intervention, no deliberation	113	28.0	27.9
2b. No educative intervention, deliberation	109	28.0	29.1
3. Expert evidence, no deliberation, posttest only	231	--	31.1

Note. Higher values indicate greater CSA knowledge. Mean score range: 9-45.

Groups 2a and 2b in Table 2 viewed the mock-trial without educative information, whereas Groups 1a, 1b, and 3 were given educative information in form of expert evidence.

Participants in Groups 1b and 2b were assigned to jury deliberations, consisting of groups of 8-12 persons (dependent on participant availability on the day). Group 2a was a control group without any intervention or deliberation and provided the baseline comparison for both manipulations. Finally, Group 3 provided their CSA misconceptions scores only posttrial; the remaining four experimental groups provided this information in the pre- and posttrial questionnaires. The value of Group 3 in Table 2 was to test whether the pretrial questionnaire influenced juror responses posttrial. Although a fully crossed four-group pretest-posttest design includes a control group without any intervention and a posttest measure only (Group 4 in Table 1), we omitted this control condition due to logical difficulties (winter court recess without jury trials) and high costs of extending data collection to add a further 100 participants from a limited pool of non-empanelled jurors.

Despite the absence of Group 4 in our research design, results revealed no practice effect of the questionnaire when comparing posttest scores in the Groups 1a and 3 (Table 2): The CSA knowledge scores were significantly higher following educative information about CSA presented by an experimental psychologist regardless of exposure to the pretrial CSA questionnaire (equal posttrial scores) compared with the control group (Group 2a in Table 2).[36] Furthermore, jurors' CSA knowledge significantly increased following educative information about CSA (Group 1a in Table 2), whereas the knowledge scores remained unchanged in the control group (Group 2a in Table 2).[37] Finally, the findings demonstrated that educative information provided by a psychological expert was more effective in reducing CSA misconceptions than group deliberations alone,[38] reinforcing the view that key elements of CSA cases are not widely understood or common knowledge, thus need more attention in the criminal justice process.

[36] One-way analysis of variance (ANOVA) was conducted to test the influence of education and questionnaire exposure on posttest CSA knowledge scores. Results revealed significant difference between the experimental groups, $F(2, 424) = 15.19$, $p < .001$. Post-hoc analyses revealed that significantly higher posttest CSA knowledge score following educative intervention regardless of pretrial exposure: Group 1a vs Group 2a: *Mdiff* = 3.2, $p < .001$; Group 3 vs Group 2a: *Mdiff* = 3.3, $p < .001$; Group 1a vs Group 3: *Mdiff* = -0.1, $p < .995$. Because there was no practice effect of questionnaire exposure, Group 3 in Table 2 was ignored for further analyses.

[37] Mixed between-within participants ANOVA, time of measure x educative intervention: Wilks' Lambda = .88, $F(1, 204) = 27.38$, $p < .001$, $\eta^2_{partial} = .12$.

[38] Mixed between-within participants ANOVA, time of measure x educative intervention: Wilks' Lambda = .93, $F(1, 410) = 31.79$, $p < .001$, $\eta^2_{partial} = .08$; Mixed between-within participants ANOVA, time of measure x decision type: Wilks' Lambda = .99, $F(1, 410) = 0.62$, $p = .433$, $\eta^2_{partial} = .00$.

Assessing the Influence of Knowledge Gain on Juror Decisions

The finding that the expert witness successfully improved jurors' CSA knowledge is important in determining the best practice and policy to educate lay jurors who serve on CSA trials to avoid decisions based on misinformation. However, it is also important to understand how this increased knowledge affects the perceived credibility of the complainants and ultimately, the jury verdict. Results revealed that the increase in CSA knowledge following the educative intervention did not produce a parallel increase in the perceived credibility of the complainant and verdicts to convict, as shown in Table 3.

Table 3. *Perceived Complainant Credibility and Individual Mock-Juror Verdicts*

Experimental group	***N***	**Mean credibility**	**Guilty verdict (%)**
1a. Expert evidence, no deliberation	108	117.6	45.8
1b. Expert evidence, deliberation	109	120.2	25.7
2a. No educative intervention, no deliberation	113	114.5	39.3
2b. No educative intervention, deliberation	109	123.4	43.5

Inspection of the conviction rates disclosed an interaction between the educative intervention and the type of decision, i.e., whether the verdict was rendered individually by each mock-juror or as a group following jury deliberation. Whereas the conviction rate among nondeliberating jurors (Control group: 39.3%; Intervention group: 45.8%[39]) increased somewhat, but not significantly, following exposure to the expert witness, it dropped sharply among deliberating jurors following exposure to the expert witness (Control group: 43.5%; Intervention group: 25.7%[40]). The fact that the conviction rates in groups 1a (45.8%) and 2b (43.5%) were statistically undifferentiated indicated that the process of deliberation per se

[39] $\chi 2$ (219) = 0.95, p = .330, Phi = .066.

[40] $\chi 2$ (217) = 7.63, p = .006, Phi = -.187.

was not responsible for a decrease in conviction rates. In other words, these analyses provided no support for the leniency asymmetry bias[41] or liberation hypotheses[42] about deliberation effects.

Nonetheless, despite the improvement in mock jurors' CSA knowledge following the educative intervention, that increase did not translate into more verdicts to convict the defendant. This research design showed that the unexpected sharp decrease in convictions in Group 1b compared to Group 1a was most likely attributable to influences during jury group deliberations. Thus further analyses of the jury groups as units were required to better understand this unexpected finding.

Assessing the Influence of Groups on Decision-Making

As was explained above, individual juror data violate the assumption of independency which is critical to conduct inferential and multivariate statistical analyses. Thus, analyses which take jury groups (as opposed to jurors) into account as units of analyses are necessary. Table 3 shows the mean pretest and posttest CSA knowledge scores, perceived complainant credibility and verdict for each deliberating jury.

Inspection of mean scores of the jury groups indicated large variability within the experimental conditions. For instance, the mean posttrial knowledge score ranged between M = 26.8 and M = 32.9 in the control group and between M = 27.8 and M = 35.2 in the intervention group. The variability was larger for perceived complainant credibility, ranging between M = 104.3 and M = 134.6 in the control group and between M = 102.7 and M = 141.5 in the intervention group. On average, the posttrial mean score of the intervention group (M = 31.2) was significantly higher than the posttrial mean score of the control group (M = 29.2)[43], whereas the difference was not significant for the pretrial CSA knowledge score (M = 28.7 and M = 28.1, respectively)[44] and for perceived complainant credibility (M = 121.3 and M = 123.4, respectively).[45]

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[41] Norbert L Kerr and Robert J MacCoun, 'Is the Leniency Asymmetry Really Dead? Misinterpreting Asymmetry Effects in Criminal Jury Deliberation' (2012) 15 *Group Processes and Intergroup Relations* 585.

[42] Dennis J Devine et al, 'Strength of Evidence, Extraevidentiary Influence, and the Liberation Hypothesis: Data from the Field' (2009) 33 *Law and Human Behavior* 136.

[43] $t(19) = 2.20$, $p = .041$.

[44] $t(19) = 0.93$, $p = .366$.

[45] $t(19) = -0.40$, $p = .692$.

Further, the highest posttrial CSA knowledge scores were not necessarily associated with the highest complainant credibility ratings and proportion of guilty verdicts (e.g., Jury 4 in the intervention group, and Jury 7 in the experimental group, Table 3). By contrast, the highest perceived complainant credibility scores were associated with guilty verdicts (i.e., Juries 3, 5, and 8 in the intervention group, and Juries 3, 4, and 5 in the control group). These results indicated that the association between pretrial CSA knowledge score and verdict was mediated by the perceived credibility of the child complainant, supporting previous research findings with individual mock-jurors.[46]

A comparison in Table 3 of the individual mock-juror verdicts within each jury disclosed more hung juries among those who deliberated without the benefit of the educative expert evidence (Juries 1, 4, and 11) than among juries exposed to the expert evidence (Jury 4). The educative expert evidence appeared to assist juries in reaching consensus.

Future analyses

A further consideration to explore in future, for instance, is the relationship between the CSA knowledge score of the dominant person in each jury and the jury verdict. Although it can be argued that the foreperson is likely to lead the deliberation process, the foreperson is not necessarily the most dominant person in a deliberation, i.e., the person who speaks the most frequently may lead the discussion and influence other jurors the most. These analyses can be supplemented by in-depth content analysis of the transcriptions of jury deliberations to provide more detail about the impact of the expert evidence on group decision processes, by analysing the following: (1) deliberation topics (time and number of utterances); (2) endorsement or resistance to specific common CSA misconceptions (e.g., delay in reporting, suggestibility and reliability of children, post-abuse behaviour and reactions to sexual abuse, relationship with the abuser); and (3) assessments of the complainant's credibility.

[46] Jane Goodman-Delahunty, Anna Cossins and Kate O'Brien'A Comparison of Expert Evidence and Judicial Directions to Counter Misconceptions in Child Sexual Abuse Trials' (2011) 44(2) *Australian and New Zealand Journal of Criminology* 196..

Table 3. *Mean Pre- and Posttrial CSA Knowledge, Perceived Complainant Credibility, and Verdict by Deliberating Jury Groups.*

	Intervention Group (1b) Expert evidence				**Control Group (2b) No expert evidence**			
	Pretrial CSA Knowledge	Posttrial CSA Knowledge	Complainant Credibility	Verdict	Pretrial CSA Knowledge	Posttrial CSA Knowledge	Complainant Credibility	Verdict
Jury 1	25.3	27.8	102.5	12NG	27.8	29.7	128.2	6NG 3G
Jury 2	29.7	31.5	113.3	12NG	27.7	27.8	104.3	10NG
Jury 3	29.9	33.5	135.9	11G	28.9	31.3	134.6	8G
Jury 4	31.8	33.1	120.8	9NG 3G	30.1	30.3	130.1	7G 2NG
Jury 5	30.1	32.1	141.5	7G 1NG	28.1	29.9	134.6	12G
Jury 6	28.1	31.3	122.6	8NG	27.4	29.7	124.7	11G 1NG
Jury 7	26.4	28.1	105.9	12NG	29.6	32.9	122.5	9NG 1G
Jury 8	29.8	35.2	140.4	11G 1NG	29.1	26.8	121.4	9NG 1G
Jury 9	29.4	30.7	102.7	12NG	27.4	27.3	115.6	7NG 1G
Jury 10	27.3	29.1	127.5	10NG	27.0	28.0	127.9	9NG
Jury 11	--	--	--	--	26.4	27.1	114.3	7G 5NG

Note. G = guilty, NG = not guilty.

Conclusions

The research approach outlined in the foregoing example contributes to psycholegal scientific research on both CSA and jury decision-making. These methods extended past research by exploring reasons for the unexpected disjuncture between individual jurors' CSA knowledge and jury group verdicts in CSA cases. The research advanced understanding of jury verdicts in CSA trials by explaining why a disproportionately high percentage of cases result in acquittals and identified legal policy reforms and interventions that can increase justice for future CSA victims. Results showed that the information provided by the expert witness improved juror knowledge about CSA and assisted the juries in reaching consensus. However, improved knowledge alone did not decrease the acquittal rate. Thus further research is needed before implications for policy can be provided. For instance, expert evidence that is more tailored closely to address factual issues specific to the case at hand, rather than generic educational information about CSA, and some guidance on deliberation processes may need to be tested.

By using a pretest-posttest trial simulation paradigm, changes in juror knowledge attributable to the interventions about key trial issues were uncovered. This new knowledge had an influence on jury appraisals of the credibility of the child complainant and on jury consensus. By including group deliberations, juror decision processes were uncovered and the importance of including deliberations in the research design[47] was demonstrated. These insights are useful before making determinations about the effectiveness of interventions such as expert evidence about CSA on jury decision making and before providing recommendations to legal practitioners and policy makers about the effectiveness of these interventions.

[47] Dennis J Devine et al, 'Jury Decision Making: 45 Years of Empirical Research on Deliberating Groups' (2001) 7 *Psychology, Public Policy, and Law* 622.