

A Forensic Examination of Court Reports

Jane Goodman-Delahunty¹ and Mandeep K Dhimi²

¹Australian Graduate School of Policing, Charles Sturt University, and ²School of Psychology, University of Surrey

Advice to professionals who conduct forensic evaluations for courts on how to write an effective report has been driven by legal evidentiary principles and best practices in assessment. Surprisingly, little attention has been paid to how salient information is integrated within a report, and how non-informational aspects of reports (e.g., order and format of information) may impact the fact-finding process. Experts are required to integrate both qualitative and quantitative information from a variety of different sources, with varying degrees of reliability and validity. Nevertheless, it is assumed that the trier of fact relatively weights and integrates the relevant information contained in a report in order to form a conclusion, and that this conclusion is then itself weighted and integrated with other evidence in order to formulate the final decision in a case. We apply theories and findings from the field of decision science to critically evaluate these assumptions and extend their application to outcomes of empirical studies on forensic reports. By drawing together the findings from these two areas of research, we identify research gaps and provide some recommendations on ways to structure and format expert reports to enhance their appropriate impact on the trier of fact.

Key words: expert evidence; forensic report; legal decision-making; professional practice.

What is already known on this topic

- 1 Training on forensic report writing has been guided by legal, ethical, and procedural compliance rather than research, leading to gaps between quality of assessments and the quality of reports.
- 2 The focus of empirical research on reports has been the perceptions of end-users and compliance of report writers with sound forensic assessment principles.
- 3 Few opportunities exist for writers of forensic reports to receive feedback about their report quality.

What this paper adds

- 1 The effectiveness of forensic reports can be enhanced by applying psychological findings from decision-making theory to non-informational aspects such as the report structure and format.
- 2 Report writers and end-users, such as judges and juries, give more emphasis to clinical and qualitative information versus actuarial, statistical, and quantitative information.
- 3 Best practices in report writing address the susceptibility of report authors and end-users to heuristic rather than weighted additive decision strategies.

The Significance of Forensic Reports as a Professional Activity

Written forensic expert reports are a key product of forensic assessments performed by qualified experts for courts (Lander & Heilbrun, 2009). Forensic report writing is a core skill of a forensic professional, bridging the gap between the underlying psychological assessment and in-court testimony (Wettstein, 2010). A survey of 79 Australian psychologists who regularly prepared forensic reports revealed that they rarely presented their evidence orally in court (Allan, Martin, & Allan, 2000). Thus, the quality of the written reports is of paramount importance: "The credibility of the psychologist, as well as the psychological profession, is under scrutiny during court proceedings and it is essential that recommendations are based on empirical data and psychological theory" (Australian Psychological Society College of Forensic Psychologists, 2012, p. 1).

Correspondence: Jane Goodman-Delahunty, Australian Graduate School of Policing and School of Psychology, Charles Sturt University (Manly Campus), PO Box 168, Manly, NSW 1655, Australia. Fax: +61 29934 4830; email: jdelahunty@csu.edu.au

Accepted for publication 29 April 2012

doi:10.1111/j.1742-9544.2012.00082.x

Despite the acknowledged importance of the topic, relatively little empirical research on reports has been conducted. Surprisingly, little attention has been paid to the manner in which salient information is integrated within a report, and how non-informational aspects, such as the order and format of the content, may impact the fact-finding process. This article reviews research on expert reports in light of theories and findings from the field of decision science to critically evaluate constraints that may influence report writers and end-users to use heuristic rather than weighted additive decision strategies. Finally, recommendations on ways to structure and format expert reports are made to enhance their full impact.

Sources of Advice on Forensic Report Writing

Forensic reports prepared by Australian psychologists are rarely accessible for public or scholarly scrutiny; most reports are confidential and remain undisclosed even when used as the basis for in-court examination of the author in open court. In Australian courts, expert reports are usually withheld from jurors as lawyers and judges deem them unsuitable for jury review and unhelpful in deliberation. In most jurisdictions worldwide, few opportunities exist for experts to receive feedback from courts and lawyers on the quality of their written reports (Day et al.,

2000; Robinson & Acklin, 2010). Accordingly, some psychologists advocated the establishment of forensic report databases to enhance the visibility of this aspect of professional practice and to create a public forum for its evaluation (Heilbrun, DeMatteo, & Marczyk, 2004).

Guidance to experts on report writing comes from four primary sources. First are the minimal standards or prerequisites specified in most jurisdictions in legal rules or statutes applicable to expert witnesses (Conroy, 2006). Australian examples include the Federal Court Practice Note CM7 (Keane, 2011) and the New South Wales Supreme Court Expert Witness Code of Conduct (Uniform Civil Procedure Rules, 2005). A second pertinent source of guidance is professional standards of practice, such as the Australian Psychological Society Code of Ethics (2007) outlining the duties of the expert to the court, the evaluatee, and the client (e.g., referring lawyer) that the expert must respect when preparing the report (Allnut & Chaplow, 2000; Martin, Allan, & Allan, 2001).

The third and most abundant source of guidance on report writing is the professional practice literature, such as books for practising psychologists, and articles in scholarly journals and trade publications. Much of its focus is assessment procedures on discrete criminal and civil topics (e.g., Oxford University Press series of 22 evaluation guides on *Best Practices for Forensic Mental Health Assessments*). Some guidebooks incorporate models for evaluation, such as the five-stage model by Goodman-Delahunty and Foote (2011, 2012). Certain practice handbooks are devoted entirely to forensic uses of specific psychometric tests, such as the Minnesota Multiphasic Personality Inventory (Pope, Butcher, & Seelen, 2006), the most widely applied forensic assessment instrument. Other guidebooks are aimed primarily at psychologists (Ownby, 1997; White, Day, & Hackett, 2007) or at psychiatrists (Greenfield & Gottschalk, 2009; Norko & Buchanan, 2011). These resources are centred largely on legal evidentiary principles and requirements that have dominated the available guidance on report writing. They often include sample reports, and list a wide range of supplementary journal articles, Internet resources, and forensic tests.

A fourth and underutilised resource is the outcomes of empirical research on forensic expert reports. Consequences of the absence of evidence-based guidance and consensus on report writing practices include widespread variability in the presentation of information in forensic reports and considerable uncertainty among practitioners on best practices (Wettstein, 2010, p. 47). Various commentators have called for more attention to conceptual issues in report writing rather than the mechanics (Wettstein, 2010), as the gap between the quality of assessments and the quality of reports can be extensive (Nicholson & Norwood, 2000). One fundamental conceptual issue that can increase this gap is confusion about the function of a forensic report.

The Function and Complexity of Forensic Reports

Report writers typically perceive the role of their reports as assembling information responsive to a referral question posed by a court or legal advocate. Although forensic reports are modelled on clinical reports, a key difference is the non-clinical

audience: legal professionals and lay triers of fact who are not experts in assessment. Other differences inhere in the content and style of clinical versus forensic reports (Grisso, 2010). Forensic reports integrate information from multiple, diverse sources such as interviews, observations, third parties, official records (medical, personnel, police, etc.), and forensic test results (Witt, 2010). They are acknowledged to be more complex than clinical reports for those reasons, and because they capture and present both the voice of the evaluatee and the expert (Griffith, Stankovic, & Baranoski, 2010). Report writers have increasingly been encouraged to accept that a report is not an objective and neutral account (Allnut & Chaplow, 2000) but a document that reflects numerous decisions made by the expert, as well as the expert's orientation, cognitive processes, and biases (Griffith et al., 2010).

The function of forensic reports is manifold. For instance, reports can document the quality of an underlying evaluation, facilitate in-court testimony for a trier of fact, serve a persuasive function, promote settlement of a case without trial, manage risk, and establish parameters regarding evaluation procedures and uses of information (Wettstein, 2010). Five distinct contemporary conceptual roles of a forensic report have been distinguished: (1) communicate information; (2) prepare the ground for deposition or in-court testimony; (3) facilitate treatment; (4) demonstrate the proper conduct of the evaluation; and (5) aid the measurement of clinical and forensic practice (Weiss, Wettstein, Sadoff, Silva, & Norko, 2011, p.17). Appreciation of these diverse functions of forensic reports underscores the complexity of the task of effective report writing, and provides some parameters to explore the scope of empirical studies on forensic reports.

Evidence-based Approaches to Forensic Report Writing

Past Psychological Research on Forensic Reports

A useful review by Heilbrun et al. (2004) set forth issues involved in constructing forensic reports, measuring report quality, and measuring the normative characteristics of forensic reports. Two types of empirical studies of expert reports have been conducted (Lander & Heilbrun, 2009). These are (1) surveys of the perceptions of mental health and legal professionals of the quality of reports; and (2) evaluations of the extent to which reports comply with principles of sound forensic mental health assessment (Doyle, Ogloff, & Thomas, 2011; Petrella & Poythress, 1983).

An Australian example of a survey of legal professionals providing some insight into standard practices in report writing was an archival study of all mental health reports requested by magistrates from the South Australian court assessment unit within a 6-month period ($N = 91$). Findings revealed that not all magistrates relied on the court assessment unit as a source of reports, although reasons for this were unknown. The majority of the reports (69%) were requested to assist the courts in determining bail or appropriate sentencing options. Analysis of the report contents showed that most reports (85%) included a diagnosis. Feedback on report usefulness was obtained from 24 magistrates (Day et al., 2000). The quality in terms of historical details, assessment information, options about the defendant,

and relevance to the determination before the courts was rated as very satisfactory, with few exceptions.

One weakness of the surveys that rely on the perceptions of professionals is their vulnerability to self-report biases, thus content analyses of reports by trained coders are preferred for their more rigorous methodology (Doyle et al., 2011; Nicholson & Norwood, 2000). A recent Australian example of a study using this approach to examine the extent to which reports complied with best forensic practices to evaluate risk was the descriptive analysis of 86 dangerous sexual offender assessment reports lodged in preventive detention proceedings in courts in New South Wales, Victoria, and Western Australia (Doyle et al., 2011). Results showed that some experts applied unreliable methods of risk assessment and erroneously reported the results of a risk instrument. These outcomes were unlikely to have been derived from a survey of legal professionals. Although this research emphasised that an offender's perceived level of risk for violence can influence a range of legal decisions within the criminal justice system, such as decisions about bail, sentencing, parole, and conditions of release from custody (McSherry & Keyzer, 2009), to date studies on forensic report writing have not explicitly addressed how critical information, such as a level of risk, is incorporated within any model of legal decision-making. In the next section, we discuss normative and descriptive research on legal decision-making, and the implications this has for forensic expert report writing.

A Decision-making Approach to Forensic Report Writing

The *rational actor model*, which dominates the legal domain, posits that individuals use *compensatory* decision strategies that weight and integrate all available and relevant information to make a decision. The very notion of due process, with its emphasis on adherence to an adversarial, adjudicative, fact-finding procedure, embodies this assumption of rational performance when it expects decision-makers, such as a magistrate, judge, or jury, to relatively weigh and integrate evidence for and against a plaintiff or defendant before passing judgement (Dhmi, 2006). The rational actor model and the notion of due process are the ideals to which legal decision-makers aspire, and the benchmark by which others evaluate their performance. Consequently, in considering a forensic report, we assume that the trier of fact relatively weighs and integrates the relevant information contained in a report to form a conclusion about its content, and that this conclusion is then weighted and integrated with other evidence in a case to reach the final judgement.

However, research in the field of judgement and decision-making convincingly demonstrated that neither legal actors nor other people (professional or lay decision-makers) working in other domains behave in such a normatively rational manner. In fact, considerable research has challenged the mythology (Konecni & Ebbesen, 1984) that legal decision-makers are compensatory, deliberate, and measured in their decision-making. This body of research demonstrated that legal decision-makers (consciously or unconsciously) ignored much of the available, relevant information. For instance, an experimental study of nine Ohio juvenile court judges used regression models to capture their decision policies. Results revealed that only two to

four statistically significant cues (out of a possible six) were used in their decisions about judicial bypass (Sensibaugh & Allgeier, 1996). The implication for forensic report writers is that not all information presented in expert reports will be considered.

More recent studies suggested that legal decision-making is best described and predicted by simple *heuristic strategies* that are *non-compensatory*, that is decisions are best described and predicted by a single item of information in a case. For example, in observational and experimental studies of bail decisions by English lay magistrates and district judges, a model called the Matching Heuristic, which bases decisions on a single factor, more aptly described and predicted bail decisions than models that weighted and integrated all of the available information (Dhmi & Ayton, 2001). In one court where observations were conducted, the Matching Heuristic correctly predicted the court's bail decisions, with on average 92% accuracy (Dhmi, 2003). The duration of bail hearings is often less than 10 min, and the rapidity of the hearings lent convergent validity to the idea that legal decision-makers may rely on a non-compensatory, *fast, and frugal* decision strategy. Different magistrates relied primarily on one of the following three factors: the prosecution request, previous court decision (if any), and the police bail decision. Reliance on those factors was an inappropriate form of "passing-the-buck," first because the magistrates were not acting independently to review the evidence before them, and second because those factors were not significantly correlated with any legally relevant factors in a case. Judges, who review forensic reports submitted in a range of legal proceedings such as a bail determination, a trial hearing on liability or culpability, or a sentencing hearing, are likely to respond in a similar manner to the information presented in a written forensic report.

In addition to demonstrating that legal decision-making does not follow a normatively rational cognitive process, past research also suggested that the performance of legal decision-makers (and other people) was marred by *errors and biases*. These included (1) overreliance on irrelevant or extra-legal information; (2) intra-individual inconsistency; (3) inter-individual inconsistency or disagreement; (4) overconfidence; (5) lack of self-insight; and (6) susceptibility to how information was ordered, (7) framed, and (8) represented. We described methods used to measure the first five in this section.

Intra-individual consistency was measured using test-retest procedures, whereby legal decision-makers were (unknowingly) presented with duplicate cases. Cohen's Kappa statistic, used to quantify intra-individual consistency across 81 lay magistrates and district judges, was on average 0.69 (1 = full consistency or reliability; Dhmi & Ayton, 2001). Inter-individual consistency (also called agreement) was measured by comparing different legal decision-makers' decisions on the same set of cases. Results of research comparing judgements by different judges have typically yielded low rates of inter-individual consistency. For instance, Sensibaugh and Allgeier (1996) found that their nine judges agreed on the decision outcome in only one third of the cases; Dhmi and Ayton (2001) found that legal decision-makers in their sample disagreed with the modal decision in an average of 15 (out of 27) cases.

Confidence in legal decisions was measured by asking legal decision-makers to rate how confident or certain they were that

they made the best or most appropriate decision. Five of the nine judges in Sensibaugh and Allgeier's (1996) study demonstrated high mean levels of post-decisional confidence. The average post-decisional confidence rating across the sample legal decision-makers by Dhami and Ayton (2001) was similar: 8 (on an 11-point scale). Insight was measured by comparing legal decision-makers' self-reports of how important or influential specific (legal and extra-legal) factors were in their decision-making against the significance of these factors in the models used to capture (and/or predict) their decision-making. Sensibaugh and Allgeier found that their judges reported using all of the six cues weighted equally, which did not correspond to the pattern of their captured decision policies. Dhami and Ayton found that their entire sample of legal decision-makers ranked the legal factors as more influential and the extra-legal factors as less influential even though the reverse was actually true in the models that best predicted their decisions.

Implications of Decision-making Research for Forensic Report Writing

Research on Decisions About the Elements of Forensic Reports

Research on normative and descriptive legal decision-making has implications for forensic expert report writing both from the standpoint of the recipients of the reports, as well as the authors, who face a series of decisions in the process of preparing a report.

Five basic decisions implicit in the act of report writing were specified by Griffith et al. (2010): (1) what information to include or exclude; (2) where to place the information; (3) the degree of emphasis to give to certain items of information; (4) the most appropriate vocabulary and writing style to employ; and (5) the length of the report. A review of research that bears on each of those decisions fosters awareness of the consequences of those decisions and their implications within a model of legal decision-making.

Information to include or exclude in forensic reports

Different researchers have used somewhat different labels or grouped information slightly differently, but there is general consensus on key elements to include in a forensic report. One recent study specified the key elements as (1) the data; (2) ethical issues; (3) historical and (4) clinical information; (5) the rationale; and (6) opinion(s) reached by the expert (Robinson & Acklin, 2010).

An earlier survey showed considerable consensus among experienced mental health professionals regarding the essential elements to include in their written reports, but more disagreement about the propriety of including the evaluatee's description of key events or the police view of the alleged offence (Borum & Grisso, 1996). A high level of "relevant and non-prejudicial detail" in reports is valuable because this may be the only opportunity that the expert has to fully itemise key background information or details, such as past traumatic events that may create a pre-existing vulnerability to psychological injuries (Goodman-Delahunty & Foote, 2012, p. 181).

A recent study examined the content of a randomly selected sample of 125 expert forensic reports on competence to stand trial submitted to a community mental health centre in the northeastern USA (Lander & Heilbrun, 2009). The content was independently rated for the presence of 20 acknowledged principles of good forensic mental health assessment, and then a "blue ribbon panel" of experts in law and mental health assessed the relevance, helpfulness, and quality of the reports. Reports that included more of the 20 key principles were rated as of higher quality, more relevant, and more helpful.

In the context of a hypothetical insanity defence case, 59 trial court judges and 72 lawyers for the prosecution and defence in the state of Virginia rated the perceived importance of eight different types of expert evidence: (1) descriptive clinical information; (2) clinical diagnosis; (3) statistical data on diagnostic validity; (4) whether symptoms in the current case met the legal standard; (5) theoretical accounts of legally relevant behaviour; (6) actuarial data on motives for legally relevant behaviour; (7) statistical data on the relationship between clinical factors and legally relevant behaviour; and (8) ultimate issue statements (Redding, Floyd, & Hawk, 2001). A principal components factor analysis to identify independent features of the ratings yielded three distinct types of evidence regarded as probative: (1) descriptive and clinical evidence; (2) legal standard and issues evidence; and (3) statistical evidence on the diagnostic reliability and statistical information about the crime (nomothetic data). Results revealed most interest in the clinical diagnosis, whether the symptoms met the applicable legal standard, and the expert's ultimate opinion. Relatively little interest was expressed in research or actuarial, statistical information; the statistical evidence was rated as significantly less probative than the first two types of evidence. Further analyses revealed that ultimate opinion information was regarded as of less value by lawyers and judges with more years of expertise.

A study of 150 forensic evaluation reports on competency to stand trial randomly selected from among 534 criminal cases before the Honolulu First Circuit Court used a coding protocol to objectively assess the presence, absence, and quality of 30 items (Robinson & Acklin, 2010). Results showed that as many as three fifths of the expert reports failed to specify fundamental items, such as the age of the accused, the charges against the accused, or the evaluation procedures employed by the expert, and fewer contained adequate historical information. Several other empirical studies have demonstrated that many expert reports omitted critical information (Doyle et al., 2011). For instance, the quality of all reports lodged with the Florida Department of Children and Families between 1997 and 2001 ($N = 1357$) was objectively rated by psychologists (Christy, Douglas, Otto, & Petrila, 2004). Fewer than half of the reports included sufficient information on the juvenile offenders' education, past offending, mental health, substance abuse, cognitive, and personality functioning, but 63% of the reports contained an adequate family history.

To promote improvements in forensic report writing, priority has been given to identifying the most common shortcomings. For instance, a study of the content of a US national sample of 62 reports written by 36 forensic psychologists seeking diplomate status revealed 30 distinct deficiencies that were classified into five major categories: (1) introductory material;

(2) organisation and writing style; (3) data reporting; (4) psychological test reporting; and (5) interpretations and opinions (Grisso, 2010). From that list of deficiencies, the ten most common faults were extracted. Based on these findings, a forensic report checklist was developed to assist report writers in reducing errors and omissions (Witt, 2010). The ten-item list advised forensic report writers to (1) organise the report coherently; (2) state the forensic referral question clearly; (3) include only data relevant to the forensic opinion; (4) separate observations from inferences; (5) consider multiple sources of data; (6) use appropriate psychological tests; (7) consider alternate hypotheses; (8) support opinions with data; (9) clarify connections between data and opinions; and (10) eliminate professional jargon.

Other efforts to improve the quality of forensic report writing have included training (Skeem & Golding, 1998). Empirical studies have demonstrated that report writers who attended training workshops generally produced significantly higher quality written reports, especially after "training on definitional criteria, procedures and standardization of report format" (Robinson & Acklin, 2010, p. 136).

Placement of information in forensic reports

General agreement on the structure of forensic reports exists regarding three major sections: (1) an introduction that specifies the referral question, sources of data relied upon, and information provided to the evaluatee on the limits of confidentiality; (2) a summary of all relevant data considered; and (3) the expert's interpretations and conclusions relevant to the forensic issue (Griffith et al., 2010; Grisso, 2010). While some studies revealed little consensus that writing a report in discrete sections that match the assessment procedures enhanced its relevance, helpfulness, or the quality of the content (Lander & Heilbrun, 2009), another study reported glaring organisational deficiencies in more than one third of the reports prepared by experienced forensic psychologists (Grisso, 2010).

Written forensic reports present information in a linear fashion. Notably, the position at which particular facts are placed "influences their impact on the reader, as what is read last will be remembered most readily" (Griffith et al., 2010, p. 38). Research on the order (or serial position) effect confirmed that the ability to accurately recall an item from memory is influenced by the order in which it is presented. Items at the beginning or end of a list are easier to recall, demonstrating recency and primacy effects, respectively. These effects are important in forensic settings because if relevant information cannot be recalled, then it cannot be consciously used to inform decision-making (Highhouse & Gallo, 1997). Although information in the middle of the list may nevertheless have an unconscious impact on decisions, its impact is less controllable and difficult to consciously correct. Evidence of order effects in the legal domain has demonstrated judicial susceptibility (Kerstholt & Jackson, 1998; Thibaut & Walker, 1975).

Griffith et al. posited that writing and structuring the first two sections of a forensic expert report, the Introduction and Data summaries, were relatively straightforward tasks, but the third section, in which the expert must restructure that information into a forensic narrative, was considerably more challenging.

Just as assumptions have been made about ways in which the trier of fact will use the information admitted into evidence to reach a decision, so assumptions are made that the report writer will relatively weight and integrate the information aggregated in a report, and integrate that with other evidence related to the case issues and the relevant legal standard and constructs, to formulate a final opinion or conclusion. The extent to which these assumptions are met has not been critically assessed.

The degree of emphasis accorded to certain items of information in forensic reports

In writing a report, the expert must integrate both quantitative and qualitative information from diverse sources, with varying degrees of reliability and validity, in light of legal standards and issues. Summaries of test results and research findings relied upon to interpret the test results are typically more quantitative, actuarial, and statistical in nature. By comparison, observations by the expert assessor made in the course of an interview typically generate qualitative, subjective data that can include more emotionally evocative information. The insertion of direct quotations from interview subjects in forensic reports has been recommended to humanise the subjects of the forensic narrative (Griffith et al., 2010), and also to distinguish more clearly the statements of the evaluatee or interviewee from the inferences drawn by the expert. In setting forth a rationale for a conclusion in a report, the expert will often mix research-driven quantitative information, based on validated, objective psychological tests, with more qualitative, subjective self-reports derived from interviews, for example regarding the evaluatee's past medical history or offending history. Although the impact of direct quotations used in forensic reports has not been empirically tested, concerns about the impact of accounts derived from interviews with victims and other witnesses who provide qualitative, emotionally evocative information have been raised.

Integration of the three major types of information (qualitative clinical information, legal information, and quantitative, statistical information) into a coherent report requires decisions as to the degree of emphasis to place on information deemed more valid and reliable compared with that which is more susceptible to subjective interpretations. According to the cognitive continuum theory (Hammond, 1996), reports that present quantitative information will stimulate more analytic thinking, whereas reports that present qualitative data will promote intuitive reasoning. Reports that combine both qualitative and quantitative data will lead to quasi-rational or commonsense thinking.

The few studies that have examined the influence of the different types of information on the report writer have shown their susceptibility to some biases. For instance, after reviewing the content of 62 expert reports, Grisso (2010) determined that a common error was overreliance on a single source of data, usually the evaluatee's self-report, to support an important interpretation or expert opinion, rather than seek corroborating information from multiple sources.

The influence of a victim impact statement on forensic experts was empirically tested in a randomised between-subjects study of 332 Canadian psychiatrists (Lynett & Rogers, 2000). The psychiatrists reviewed information about a sexual assault case,

including a four-page psychiatric report, a one-page police report, relevant sections of the Canadian Dangerous Offender Criminal Code, and a referral letter. One half of the sample also received a one-page account by the victim, while the other half did not. Exposure to the victim's statement significantly influenced the evaluators' perceptions of the dangerousness of the accused, application of the Dangerous Offender standard, potential treatment, and recommendations for indeterminate sentences. Surprisingly, the victim's statement exerted a more powerful effect on the Dangerous Offender standard applied by the experts than did clinically relevant information (a history of aggressive behaviour). In other words, the evocative information from the victim eclipsed the clinically salient historical information.

Other research has investigated the influence of different types of information contained in forensic reports upon the trier of fact. Early research on the perceptions of reports by end-users, such as lawyers and judges, revealed that they prioritised descriptive information and testimony interpreting the legal standard (Poythress, 1983). Statistical or actuarial data were rated the lowest in probative value. Although psychologists routinely include references to nomothetic or normative data in their reports since this allows comparisons of group data with data obtained from the individual evaluatee, research has indicated that nomothetic or social framework evidence was undervalued by legally trained professionals, perhaps because it was less well understood (Redding et al., 2001). This finding replicated outcomes of a national survey of trial judges and lawyers who frequently "did not appreciate the value of research evidence, believing instead that nomothetic research had no bearing on individual cases" (Redding & Repucci, 1999, p. 50).

Several studies of the influence of quantitative, statistical versus qualitative, clinical information on the perceptions of mock jurors have been conducted. These two types of specialised information presented in expert psychological reports are the most common forms of expert evidence. For instance, in a Canadian study of 188 jury-eligible people, the influence of clinical expert evidence presented in written reports was compared with that of statistical expert evidence, and a control group in which no expert report was presented (Gelinias & Alain, 1993). Two case types were tested using expert reports derived from actual trials: one involving child custody, and another juvenile violent theft. The clinical expert evidence had greater impact than did the statistical expert evidence on the perceived usefulness and quality of the report, and the competence and professionalism of the expert. Whereas previous researchers theorised that jurors simply ignored statistical information, these results showed that verdicts in response to statistical expert reports differed significantly from those of jurors exposed to clinical reports or no expert evidence, that is the statistical information produced significantly more negative views of the accused, whereas the clinical details and information evoked more empathy for the accused. This outcome was explained in terms of attribution theory, whereby statistical information failed to evoke empathy or foster identification with the accused, leading to more attributions of personal rather than situational responsibility, and thus more severe verdicts and sentences.

Appropriate language to employ in forensic reports

Written expert reports are a form of professional communication for the edification of lawyers, judges, and juries. Thus, report writers are advised to avoid technical and clinical jargon (Melton, Petrila, Poythress, & Slobogin, 2007), and to explain their diagnoses (Conroy, 2006). Technical jargon was the major complaint by a random sample of 92 British solicitors about the writing style in court reports (Marchevsky, 1998), and was specified as a source of weakness in reports reviewed by Grisso (2010): one in five reports contained multiple instances of jargon, biased phrases, pejorative terms, or gratuitous comments by the report writer.

Recommendations from the UK Academy of Experts on report writing advocated expression "in the first person singular by the person whose opinion has been given or who adopts as his own the opinions of others" and "text which is arranged in short sentences and paragraphs," (Rix, 1999, p. 157).

The presentation of a degree of risk exposure is central in many forensic reports regarding eligibility for bail, sentencing recommendations, and post-sentence incarceration or preventive detention. Language expressing risk is critical. For instance, use of conventional categorical terms such as "low," "medium," or "high" is preferred over terms such as "unacceptable," "significant," and "likely," which are ambiguous (Doyle et al., 2011). Similarly, adding descriptors to the standard categorical terms is discouraged, as these also increase ambiguity.

A further issue related to the language used in written reports, and particularly language expressing the outcomes of risk assessments, is that of the frame of the information. Framing is defined as the presentation of two logically equivalent situations, where one is presented in positive or gain terms, and the other in negative or loss terms. How messages are framed can have a substantial impact on people's perceptions and behaviours (Kuhberger, 1998; Levin, Schneider, & Gaeth, 1998). People demonstrate risk aversion in the positive, gain frame, and risk-seeking in the negative, loss frame (Tversky & Kahneman, 1981). Although framing effects appear to be ubiquitous and have been demonstrated across various domains, including the legal domain (Gilliland & Dunn, 2008; Korobkin & Guthrie, 1994; Rachlinski, 1996; van Koppen, 1990), these principles have not been incorporated in psychological reports addressing risks of future violence, dangerous sexual reoffending, or general recidivism.

The optimal length of forensic reports

Empirical studies of the length of forensic reports have disclosed variability. The average length of over 1,000 reports reviewed in six North American studies ranged from one to four pages, and varied by jurisdiction (Nicholson & Norwood, 2000). The mean length of reports to Southern Australian magistrates was 5.94 pages (Day et al., 2000). By comparison, most reports on competence to stand trial included in the archival study by Lander and Heilbrun (2009) were very short, with a mean length of two pages. Notably, longer reports in the latter sample were rated as higher in quality. The report length preferred by British solicitors was three to four pages (Marchevsky, 1998). Most sample reports far exceed that length. Many forensic reports in criminal cases (Heilbrun et al., 2004) and in civil cases, such as

workplace discrimination claims in which issues of both liability and damages are addressed, reach 20 single-spaced pages (Foote & Goodman-Delahunty, 2005).

Typically, expert reports consist entirely of verbal text. In longer forensic reports, in particular, the incentive to vary the manner in which information is represented is greater, that is verbal text plus information presented in numerical or visual (e.g., graph) formats. The format in which information is represented has an impact on how that information is understood and used to inform decisions (Sedlmeier & Hilton, 2011). For example, graphical information can strongly impact decision-making (Gigerenzer, Hertwig, Hoffrage, & Sedlmeier, 2008; Sedlmeier, 2007), and visual information can de-bias people (Garcia-Retamero & Dhami, 2011). Although to date no one has studied the effects of information representation in expert reports on legal decision-making per se, the likelihood is that legal decision-makers will be similarly influenced by the power of visual versus numerical or written verbal information. Errors and biases in decision-making may arise when the visual information is less relevant to the case, and from a less reliable source.

Conclusions

Unfortunately, the performance of legal decision-makers (or other people) is not necessarily improved by *experience* (and *training*) or existing schemes *aiding* their decisions. For instance, Dhami and Ayton (2001) found few differences in bail decisions by those who had more versus less years of experience, legal qualifications, or training. Furthermore, Bail Information Schemes, which collected, verified, and provided largely positive information about a defendant's community ties, had no significant effect on bail decisions or the level of intra- and inter-individual consistency in decisions (Dhami, 2002). Rather, the schemes served to further increase legal decision-makers' confidence in their decisions.

Therefore, the existing evidence from both within (and outside) the legal domain suggests that the rational actor model does not accurately describe how people make decisions. In fact, this normative model is not psychologically plausible (Dhami, 2006). Legal decision-makers are only human, and the human mind is characterised by limited attention, memory, and information-processing capacities (Kahneman, 1973; Miller, 1956). Unaided human judgement cannot resist the demands of compensatory decision strategies (Gigerenzer, Todd, & the ABC Research Group, 1999; Simon, 1956, 1990), and under specific task conditions, people choose strategies that reduce cognitive effort (Payne, Bettman, & Johnson, 1993). Fortunately, the ineffectiveness of experience, training, and guidelines can mostly be overcome by ensuring consistency, specification, and precision of working practices, training, and guidance.

The nature of forensic decision-making tasks is another reason that performance by decision-makers in this context falls short of the legal ideal. Legal decision-makers are often expected to perform under suboptimal conditions: there may not be rules of procedure governing some types of tasks; relevant information on a case may be unavailable; decision-makers rarely know the objective predictive validity of different factors; they may be faced with heavy caseloads; and there may not be much consistency in the types of cases they

work on. Research in cognitive psychology shows that these types of factors can influence the decision-making processes used, leading decision-makers to be less consistent, to rely on simple decision-making strategies, and to ignore relevant information (Davis & Davis, 1996; Edland, 1979; Payne et al., 1993; Rieskamp & Hoffrage, 1999). As task complexity increases, people switch to simple non-compensatory strategies (Timmermans, 1993). Importantly, the ability of legal decision-makers to perform well is likely to be hampered by the fact that the law typically does not provide sufficient guidance on how decisions ought to be made. Therefore, there is ample opportunity for legal decision-makers to interpret and apply the law differently (even on similar cases), and for them to be influenced by socially undesirable or extra-legal cues, as well as be biased by how information is framed and ordered.

In sum, the assumption that the report writer or the trier of fact relatively weights and integrates the relevant information contained in a report in order to form a conclusion, and that this conclusion is then itself weighted and integrated with other evidence in order to form the final judgement in a case, is not supported by the extant literature from the field of judgement and decision-making. Explanations for why experts or triers of fact may not behave in this manner lie in both the limitations of the human mind, and the constraints of the particular decision-making task. Thus, efforts to improve forensic expert report writing and legal decision-making involving expert reports should be directed at both helping the decision-maker overcome his/her cognitive limitations by, for example, providing decision aids, and at minimising the constraints of the decision-making task by, for example, ensuring the availability of all relevant information and necessary time.

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