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The Effects of Different Forms of Risk Communication on Judicial Decision Making

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When mental health experts provide information to courts on the results of a risk assessment conducted on a defendant or patient, they engage in “risk communication.” We examined the effects of four different forms of risk communication (prediction, categorical, risk factors/risk management, or hybrid) on judges’ ($n = 253$) perceptions of risk assessment evidence introduced in a case where they must decide whether to release from the hospital an individual found not guilty by reason of insanity. Judges who received information in the risk factors/risk management form were more likely to release the patient than were those who received prediction-based or categorical risk information. Judges with greater experience hearing cases involving risk assessment evidence were also more likely to release. Moreover, judges who had positive attitudes towards risk assessment and social science evidence in general, were more likely to find the risk assessment evidence introduced in the particular case to be understandable, relevant, and dispositive. Implications of the results for how mental health experts communicate risk information to the courts are discussed.

Keywords: Risk communication, risk assessment, judicial decision making, violence

Mental health experts often provide information to courts on risk assessment in legal proceedings, including civil commitment proceedings and sentencing hearings in criminal cases (Heilbrun, Dvoskin, Hart, & McNiel, 1999). When mental health experts communicate the results of their risk assessment, they engage in “risk communication.” As “the link between risk assessment and decision-making about risk” (Heilbrun et al., 1999, p. 94), risk communication can often have serious consequences for legal decisions. Yet, “[b]ecause the field of risk communication is very new, no professional consensus had emerged on a standard way of communicating risk estimates” (Monahan et al., 2005, p. 11).

Typically, risk assessment information is communicated to courts in one of four forms: prediction, categorical, risk factors/risk management, or hybrid (Heilbrun et al., 1999a). The prediction form provides an estimate (communicated as a probability or frequency) that a particular risk of harm

will occur over a specified time period. The categorical form places the evaluated individual into one of three to five potential categories of risk (e.g., low, moderate, or high). The risk factors/risk management form—the most popular form among clinicians—identifies the relevant risk factors and effective ways to manage them (Heilbrun, Philipson et al., 1999; Heilbrun et al., 2000). Finally, the hybrid form combines the risk factors/management and predictive or categorical forms, once again at the clinician’s discretion as in the risk factors/risk management form.

Heilbrun et al. (1999a) highlighted a number of reasons why risk communication should undergo rigorous study, including the increased demand for risk assessment in the legal system, the importance of risk communication in legal decision making and in fashioning appropriate treatment interventions, and the lack of empirical research on risk communication. Indeed, in 1989, the National Research Council identified risk communication as an important area for empirical study. Although the science of risk assessment has advanced substantially over the last twenty years, particularly given the development of actuarial and structured tools

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for assessing risk (Monahan et al., 2001; Monahan, 2007, 2008; Listwan, Van Voorhis, & Ritchey, 2007), there remains relatively little research on risk communication.

Several studies have examined clinicians' use of, and preference for, the different forms of risk communication (Heilbrun et al., 1999b, 2000; Monahan, et al., 2002). Heilbrun et al. (1999b) interviewed clinicians about their practices with respect to communicating risk information to courts. They found that few clinicians provided probability estimates in the prediction form of risk communication, mainly because they felt that the state of the science does not permit valid probabilistic estimates of risk. Rather, many clinicians preferred to specify how particular risk factors might raise or lower the risk, or preferred to use risk categories (e.g., low, moderate, high) when communicating their conclusions. Some clinicians simply described the individual's past and present behavior and their clinical impressions, without mentioning risk factors. Heilbrun et al. (2000) found an interaction effect between risk factors and risk level in determining clinicians' communication preference. Clinicians preferred to use the risk factors/risk management form when the risk factors were mainly dynamic (i.e., changeable) and the risk level was high, rather than in situations where the risk factors were static and the risk level was low. Monahan and colleagues conducted several studies comparing the effects of presenting risk information in a probability (e.g., 26%,) versus a frequency format (e.g., 26 times in a 100), one with psychologists working in state forensic facilities (Monahan et al., 2002) and the other with judges (Monahan & Silver, 2003). Both studies found that the frequency format of presentation produced more conservative civil commitment decisions, which is consistent with prior findings that frequency-based estimates lead to more conservative decisions about managing risk (Slovic, Monahan, & MacGregor, 2000).

In sum, there is a dearth of research on judicial decision making generally (Redding & Murrie, 2007), and there apparently is no research examining how the four primary forms of risk communication (prediction, categorical, risk factors/risk management, and hybrid) may differentially affect judges' dispositional decision making. Using a case vignette methodology, we examined the effects of the different forms of risk communication on judges' perceptions of the clarity, value, and dispositive weight of risk assessment evidence introduced in a case where they must decide whether to release from a state mental hospital an individual found not guilty by reason of insanity (NGRI). We also examined whether their perceptions and decisions were related to their overall experience with, and attitudes toward, risk assessment evidence or social science evidence generally.

METHOD

Participants

Participants included 253 criminal court judges (205 males, 46 females), with an average age of 56.5 ($SD = 7.8$). Judges

reported that they had served an average of 13.2 ($SD = 7.8$) years on the bench, with an average of 12.1 ($SD = 7.7$) years as a criminal court judge. All participants indicated that they had experience hearing cases involving risk assessment evidence.

Procedure

A survey was mailed to a sample of criminal court judges throughout the United States, whose names were randomly selected from *The American Bench* (Reincke & Wilhelmi, 2005). (All states were included except for New Jersey, because judges in this state are not permitted to respond to surveys.) Participants were sent a letter explaining the purpose of the study, a survey, and self-addressed stamped envelope. A total of 1,200 surveys were mailed and 253 responses were received, yielding a 21% response rate.

Measures

The survey began with a short set of instructions followed by a case vignette that described a defendant who had been committed to a state mental hospital following an adjudication of NGRI for aggravated assault. (Rather than depicting the typical homicide NGRI case, wherein judges may tend to automatically lean towards refusing to release because of the seriousness of the offense, we wanted to select a case that would better elucidate the impact that the form of risk communication per se would have on judicial decision making. We thus selected the less serious crime of aggravated assault, a crime that nonetheless carries the possibility of substantial sentence lengths.) He now was petitioning the court to be released from the hospital:

Mr. Robert Johnson was acquitted not guilty by reason of insanity for an aggravated assault he committed in 1995. Mr. Johnson has been undergoing intensive psychiatric and psychological treatment in your state mental hospital for the past ten years. Now, Mr. Johnson's lawyer petitions the court to request that Mr. Johnson be released from the hospital and discharged to the community because he is no longer a risk to society. In order to help you make this decision, the court orders a risk assessment to be conducted on Mr. Johnson by a licensed professional psychologist.

Among the conclusions reached in the psychologist's assessment is the following: Mr. Johnson is a 35-year-old male with a history of argumentative behavior. Mr. Johnson loses his temper easily which may result in confrontations and threats. Because of these occasional outbursts, he has found it difficult to maintain a steady job prior to incarceration. Mr. Johnson is estimated to have an 8% to 26% probability of committing an aggressive act during the next six months.

Many studies have been conducted testing the method of risk assessment used by the psychologist. These studies, which were published in peer reviewed psychological journals, found an average error rate of roughly 20–25%.

Leading researchers in the field of risk assessment have endorsed these studies. The risk assessment measure utilized by the psychologist is considered to be state of the art.

The study used a between-subjects design, with the form of risk communication (prediction, categorical, risk factors/risk management, or hybrid) as the between-subjects factor. Thus, there were four versions of the survey. In the version given above, the psychologist's opinion was provided in the *prediction form*: "Mr. Johnson is estimated to have an 8% to 26% probability of committing an aggressive act." (The probability was set at 8–26%, as research shows this to be the decisional thresholds used by judges for deciding whether a civilly committed patient represents a low (8%) versus a high (26%) risk for future violence; see Monahan & Silver, 2003.) The *categorical version* stated that "Mr. Johnson is estimated to be a moderate risk for committing an aggressive act." The *risk factors/risk management version* stated that "Mr. Johnson has the following risk factors: difficulty controlling his anger and unemployment. These risk factors can be managed by requiring Mr. Johnson to participate in anger management counseling and vocational training." Finally, the *hybrid version* stated that "Mr. Johnson has the following risk factors: difficulty controlling his anger and unemployment. These risk factors can be managed by requiring Mr. Johnson to participate in anger management counseling and vocational training. Mr. Johnson is estimated to be a moderate risk for committing an aggressive act."

The vignette concluded with a brief description of the state of the science with respect to the type of risk assessment conducted by the psychologist, providing information that is legally relevant (e.g., whether research on the method of risk assessment have been published in peer-reviewed journals, error rate of the method used, and the method's acceptance in the scientific community) for judges to consider when evaluating the admissibility of scientific evidence, as per the U.S. Supreme Court's decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.* (1993) and as also relevant under *Frye v. United States* (1923).

Following the vignette were questions asking the judges to rate, on a 5-point Likert scale, the likelihood that they would release the patient, as well as the degree to which they found the psychologist's opinion clear and understandable, valuable, relevant, and dispositive in their decision making about whether or not to release. Judges were also asked to provide their own percentage estimate of the risk that the individual would commit a future act of violence after release from the hospital ("recidivism risk"). Finally, the judges were encouraged to provide comments to explain the reasons for their evidentiary ratings.

Included at the end of the survey was a demographic and attitudinal questionnaire asking about the judge's age, gender, number of years as a judge, the number of cases heard yearly involving risk assessment (either 1–15, 16–30, 31–45, 46–60, or more than 60 cases per year), the judge's attitude

toward risk assessment evidence ("risk assessment" was defined as "the process by which a professional provides a formal evaluation to determine the likelihood that an individual will commit acts of violence in the future and/or to determine how to reduce future risk"), and the judge's attitude toward social science evidence. The two attitudinal questions were answered on a 5-point Likert scale, (1 = very negative; 5 = very positive).

RESULTS

Manipulation Check

First, it was necessary to conduct a manipulation check on risk level to determine if the survey was successful in maintaining the risk level relatively constant across vignette types. Since the study was examining the impact of forms of risk communication on decision making, a variation in risk level across vignette types would have produced a confound, making it impossible to attribute any difference in decision making to the form of risk communication rather than the varying risk level. Judges' mean rating of risk level for the prediction vignette was determined to be 17% for the purpose of statistical analyses, because 17% is the average of the 8% to 26% range that was specified in the vignette providing the prediction form of risk communication. Judges' mean ratings of risk level for the other three vignettes were as follows: categorical (43.7%), risk factors/risk management (44.6%), and hybrid (48.9%). Six independent *t*-tests were run, with the significance level liberally set at .10, to detect any potential differences. Only the prediction condition differed significantly from the categorical condition ($t(98) = 9.1, p < .001$), the risk factors/risk management condition ($t(89) = 8.5, p < .001$), and the hybrid condition ($t(120) = 9.9, p < .001$). Thus, the manipulation worked for three of the four forms of risk communication, holding risk level constant across the categorical, risk factors/risk management, and the hybrid condition. Nonetheless, because the prediction condition differed from two of the other conditions, risk level was covaried out in the analyses.

Judges' Attitudes and Evidentiary Ratings

Table 1 shows the intercorrelations among judges' evidentiary ratings of the clarity, value, relevance, and dispositive weight of the risk assessment evidence, judges' attitude towards social science evidence, and judges' attitude towards risk assessment evidence. Notably, there was a significant positive correlation between judges' attitude towards social science and their attitude towards risk assessment ($r = .36, p < .01$). Moreover, there were significant positive correlations between their attitude towards risk assessment and their ratings of the value, relevance, and dispositive weight of the risk assessment evidence introduced in a particular

TABLE 1
Correlations Between Judges' Evidentiary Ratings and Attitudes

	Attitude Towards Risk Assessment	Clarity	Value	Relevance	Dispositive Weight
Attitude Towards Social Science	.36**	.16*	.14*	.22**	.29**
Attitude Towards Risk Assessment		.13	.23**	.26**	.24*
Clarity			.55**	.30**	.41*
Value				.52**	.56**
Relevance					.46*

* = $p < .05$, ** = $p < .01$.

case ($r = .23$ to $.25$, $p < .01$). Similarly, there were significant positive correlations with their attitude towards social science and their evidentiary ratings ($r = .14$ to $.29$). Overall, judges' attitudes towards social science evidence ($M = 3.82$, $SD = .88$) and risk assessment evidence ($M = 3.43$, $SD = .85$) were neutral or somewhat positive, as indicated by their mean ratings on a 5-point Likert scale (1 = very negative; 5 = very positive).

A MANCOVA was performed, with the four forms of risk communication as the independent variables and judges' ratings of recidivism risk as the covariate. The dependent variables were the judges' evidentiary ratings for the risk assessment evidence. No significant main effects were found for clarity ($p = .53$), value ($p = .21$), relevance ($p = .71$), or dispositive weight ($p = .74$). Thus, judges did not find one form of risk communication to be of greater evidentiary value than the other forms.

To determine whether judges' ratings of the likelihood of release were affected by the form of risk communication, an ANCOVA was performed, with judges' ratings of recidivism risk as the covariate. There was a significant main effect for the form of risk communication, $F(3,225) = 3.3$, $p < .05$. Tukey's post-hoc tests showed that judges were significantly more likely to release when presented with risk information in the risk factors/risk management form ($M = 3.02$, $SD = 1.05$) as compared to the prediction form ($M = 2.36$, $SD = 1.06$), $p < .05$, effect size = .61 (Cohen's d) or the categorical form ($M = 2.5$, $SD = 1.13$), which was marginally significant, $p = .06$.

To determine whether judges' release decisions were related to their experiences in hearing cases involving risk assessment evidence, judges hearing only 1 to 30 cases a year (68% of judges) involving risk assessment were compared to those hearing between 31 and 60 cases (31% of judges) involving risk assessment. The difference between the two groups was significant, $t(244) = 1.87$, $p < .05$, effect size = .26. Judges who had greater experience with risk assessment evidence were more likely to release than judges who had less experience with such evidence.

Qualitative Responses

Judges' written explanations for their ratings provide additional insight into their attitudes towards risk assessment evi-

dence. Some judges expressed reservations about the validity of risk assessment or the impartiality of expert witnesses. As one judge said:

I have been in the business for over 30 years and have seen trends in assessment and treatment come and go. I have handled a paranoid schizophrenic for 15 years who has killed and assaulted individuals. He has been released several times after such "state of the art" assessments only to be picked up again stalking or threatening random individuals.

Similarly, another judge observed, "I have seen too many private psychologists who come into court and testify. It seems that most of them have never seen *anyone* that they think should be subjected to the criminal system!" One described psychologists as "soothsayers." Five judges opined that risk assessments should be performed by a psychiatrist; one judge noted that "only one person present[ed] a risk assessment; should be three with at least one being an M.D."

DISCUSSION

Two key sets of findings emerge from the results. First, judges did not view one form of risk communication more favorably than any other form, perhaps due to the brief amount of information provided in the vignettes. Yet, judges who received information in the risk factors/risk management form were more likely to release the NGRI patient than were those who received only predictive or categorical data on risk level. Judges may have been skeptical about releasing the individual without any plan to control his behavior or reduce the risk of recidivism. But by delineating the risk factors and specific ways for managing them, judges may have been positively affected by a plan of action that aims to reduce recidivism. Experts in risk assessment and risk communication recommend that judges be provided with information on the relevant risk factors and ways to manage them, especially when they must fashion dispositional decisions (Heilbrun, 1997; Heilbrun et al., 1999a,b; Melton et al., 2007).

In addition, judges having greater experience hearing cases involving risk assessment also were more likely to release the individual. Perhaps judges with such experience had greater confidence in the risk assessment, and thus, were

more willing to rely on such information (which indicated a relatively low or moderate risk) in making the release decision. (This is consistent with a recent study finding that more experienced judges, and judges who were knowledgeable about the ineffectiveness of transfer as a deterrent to juvenile crime, were significantly less likely to recommend that a juvenile be transferred to criminal court in a particular case, see Hensl & Redding, 2005.) Or, more experienced judges may have perceived less risk from this defendant, as compared to the NGRI cases they adjudicate, which often involve murder charges.

Second, judges who had positive attitudes towards risk assessment and social science evidence generally, were more likely to find the risk assessment evidence introduced in the particular case to be valuable, relevant, and dispositive. There also was a positive relationship between the judges' attitude towards risk assessment evidence and their attitudes towards social science evidence generally. These findings confirm that general attitudes about social science correlate with legal judgments made about particular social science evidence introduced in court cases, a finding that is consistent with previous research (Redding, 2004; Redding & Reppucci, 1999). Indeed, some of the judges' comments explaining their ratings of the risk assessment evidence referred to their general skepticism about social science generally, which also is consistent with previous research on judges' attitudes towards social science (Redding & Reppucci, 1999).

The vignette used in this study depicted only one case and provided far less information than would be available to judges in real life. We cannot presume that the same results would be obtained in the real world, where more information along with cross-examination is provided, the stakes are significant and real, and where judges would give their decisions more thorough deliberation. In addition, we were unable to measure the possible impact of jurisdictional differences in NGRI release procedures on judges' decisions. Thus, we do not know whether the results would generalize to other types of cases involving different offenses, levels of risk, mental disorders, and jurisdictional variation in conditional release and outpatient monitoring mechanisms. Despite the study's limitations, it is the first empirical examination of judicial decision making about risk assessment evidence. The results contribute to our nascent understanding of the factors that influence judicial decision making about risk assessment evidence. Through experimental study, judicial surveys, and interviews with judges, future studies should examine a wide variety of cases and contexts to further our understanding of how judges evaluate risk information communicated in various forms.

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