EBMH notebook

Risk assessment

An understanding of the concept of risk assessment is by no means exclusive to the forensic mental health field.[1] However, decisions made as a product of such risk assessments in the context of mental health have fundamental ethical implications for the public, policy makers, and practitioners. There is a danger of losing sufficient sight of such issues with a literature which appears more characterised by the discussion and construction of the latest ''structured risk assessment tools''. The field is replete with the presentation and promotion of such ''tools'' to potentially receptive policy makers and practitioners. The underlying assumption, and perhaps appeal, of such approaches to risk assessment is that if only we sharpen our tools further we will be able to accurately predict and prevent harm. In an environment of media and public concern about risk assessment and practices in the forensic mental health field, such Faustian seeds may seem to be sown with impunity.

LIMITATIONS TO RISK ASSESSMENTS

As a starting point to this editorial it is worth reflecting on the fundamental question of what we mean by risk assessment. The term risk is used in a variety of sometimes conflicting ways in forensic practice. It is used as a synonym for the concept of ''dangerousness''. It is referred to as both a cause and effect. Historically notions of risk have also been conflated with the potentially overlapping area of ''prediction''. A major concern here is when statements of probability are mistaken for predictions about the actual behaviour of an individual. Logically such a ''prediction'' suggests a specific level of probability of a behaviour occurring, rather than of the behaviour itself as a predicted outcome. It follows that the test of such ''predictions'' lies in group outcomes, for a significant number of cases. So, for example, a clinician may make an assessment that the probability of a particular offender reoffending is a one in four chance over a two year period. On the basis of such a report the offender is set free and reoffends, say after three months. This is evidently not per se evidence of the inaccuracy or accuracy of the assessment. It may though be perceived as simply getting it wrong in the eyes of the general public, the media, and politicians.

Greater semantic clarity is fundamental to effective risk assessment. Where the term ''risk'' is being used as a statement of probability it is vitally important that the ''risk'' or ''risks'' of concern are adequately specified. The interactions and synergies between multiple risks also need to be considered. So, for example, an offender with a history of violence may at certain points in time have an inflated risk of suicide, and may also have a contemporaneous inflated risk of both suicide and further violence to others.

A significant technical challenge in this area is that levels of risk may potentially fluctuate over sometimes short periods of time. Suicidal behaviour in forensic settings provides a good illustrative example of this tendency. This also puts some key limitations upon our risk assessments, but it can also help us shape them. For the moment if we refer to the identified behaviour of concern—for example, risk of completed suicide—then we may begin our exploration and examination of what may influence whether or not the level of risk increases or decreases. This is useful information for others who may have to make many of their initial risk management decisions largely drawing from a set of risk assessment reports authored by a range of professionals. An awareness of the germane evidence base in combination with a thorough understanding of the risk assessment process is needed to do full justice to such work. In principle this should be a reasonable expectation of professionals involved in this area of work. In practice it is not always evident that this is the case. In some ways though, a perhaps more challenging aspect of such work is not the calculation and specification of the ''types and levels of risks'' but rather the decision making in view of such assessments. I will now move on to briefly consider this key area of practice.

Much work on risk assessment and arguably risk management has been largely about how to weight a range of variables in terms of their impact on calculations or professional judgements about the level of risk for a specified outcome. Such judgements bring to the fore a series of questions particularly in relation to risk management. There is also a need to carefully consider the decision making processes once a determination has been made regarding the level of risk. Human judgements are subject to a whole series of well documented biases in decision making. To name one illustrative example individuals tend to show an ''anchoring'' bias in their judgements.[2] This is the psychological process whereby once an initial judgement about a case has been made we are unlikely to shift from it significantly. This phenomenon is both resistant to change and persistent in containing judgements around the anchor point sometimes despite new evidence which may call initial judgements fundamentally into question. The multiple psychological and social processes which effect decision making in relation to both risk assessment and management have received scant regard in the forensic mental health literature and field yet are crucial in contextualising our understanding of risk. Accurate contextualisation in turn is more likely to lead to more accurate risk assessments and more realistic risk management.

It is important also to acknowledge that the routine separation of risk ''assessments'' and ''interventions'' to reduce risk is, in large part, one of conceptual convenience rather than simply a reflection of two qualitatively different processes. The language of ''assessments'' and ''interventions'' may sometimes beget an unduly mechanistic understanding of the relation between these two processes. Such relations are perhaps more appropriately characterised by a process of reciprocal iteration. Thus assessments and interventions are psychologically dynamic and overlapping domains.

ECOLOGICAL VALIDITY

Perhaps the most salient aspect of context in risk assessment is what may be referred to as a problem of ecological validity. Often assessments are requested with considerable temporal

distance between the point at which the assessment is made and the point at which a particular behaviour may or may not be exhibited. A useful analogy that has been drawn here is with short, medium, and long term weather forecasting.[3] In general, short term ''predictions'' of weather conditions or at least the probability of particular weather conditions occurring are very accurate, despite popular folklore to the contrary. Medium term forecasting is less accurate and long term weather forecasting is much less accurate. This is because the task becomes exponentially more difficult as long term forecasts involve the actions and interactions of more and more variables. It becomes increasingly difficult to account for and control all potentially relevant intervening variables. The same situation applies with risk assessments in the forensic field where the challenge of making risk assessments at increasing temporal distance becomes increasingly less accurate. It is all the more curious that this is often what clinicians are asked to do and often agree to do.

The research evidence suggests that temporal distance will have a direct and highly significant impact on the likely accuracy of judgements about ''risk''. This is potentially very important in terms of its implications for effective practice. It is arguably likely to have far more potential impact on the accuracy of our assessments than say, typically, data about the fine tuning of a particular risk assessment ''tool''. In terms of a contextual factor, clearly the timing of risk assessments is important. All things being equal, risk assessments are likely to be more accurate if made in relation to shorter (and clearly specified) time frames. This is a problem of ecological validity primarily because we cannot sufficiently accurately ''predict'' the factors in the environment which may have indirect, or direct impacts. With lengthier potential time frames for risk assessment there is a greater potential for things to go wrong because there is more opportunity for such outcomes.

An additional and possibly more traditional aspect of the problem of a lack of ecological validity to some risk assessments is that the environment where the initial assessment is made is often markedly different from that in which the individual will be at ''risk''. This is neatly illustrated within prisons where there tend to be highly ordered and structured environments. This sits in marked contrast with the lack of structure which may be apparent in the environments of prisoners released into the community.

THE IMPORTANCE OF BEING ETHICAL

Curiously much of the discourse on risk assessment in forensic contexts is expounded with an implicit understanding that ''the public'' and ''the offender'' are separate categories while, with no apparent sense of irony, discussing the purported efficacy of different types of intervention. This is curious because interventions are, in effect, deemed successful if the individual makes the transition from ''offender'' to ''member of the public''. Additionally offenders are often more likely to be victims of crime than other members of the public. The crucial point here is that whereas it may well be that offenders should lose their liberty for the commission of certain crimes they should not loose their citizenship. The fundamentally coercive nature of forensic contexts probably does not require further iteration here. Safe to say, as briefly touched upon earlier, it brings into sharp focus some ethical issues. One of the areas with significant potential for obfuscation is the often confused sense of who the client is in relation to forensic risk assessments. Adapting to the complexities of multiple clients and stakeholders is key to effective forensic practice. Simply viewing the direct recipient of services as *the* client is clearly problematic. The routine separation of ''public'' and ''offender'' interests though does not stand up to scrutiny. Many members of the public are offenders and all offenders are part of the public.

Consent and confidentiality feature in a number of professional guidelines for practice. There will inevitably be limits to the power and reliability of reported consent in any coercive environment. Criminal Justice environments are no different in this respect. A consideration of consent to assessment is important as it would be for any other areas of clinical assessment. The onus is on practitioners to explain why they have not sought or been given consent to any clinical assessment. Similarly with the issue of confidentiality. The limits to confidentiality have long been acknowledged. Practitioners deciding to breach confidentiality have the onus on them to justify such an action. In the forensic field, perhaps more often than elsewhere in clinical practice, it is common to weight hypothetical third parties more heavily.

Ethical guidance, particularly from the perspective of undertaking risk assessment work, would benefit from being reappraised in terms of what often amounts to an undue narrowness in approach. A consideration of structural inequalities and power relations is essential to informing good ethical practice. This is a key aspect of informing accurate risk assessments. It is arguably amplified in importance in the forensic field because of the consequences of risk assessment and management decision making. The consequences of potential misjudgements involves miscarriages of justice, and also harm if an offender is released from a secure facility and seriously reoffends.

It is probably axiomatic to state that convicted offenders tend to come disproportionately from lower socioeconomic backgrounds and particular ethnic groups. This is in contrast to the socioeconomic groups and backgrounds, by and large, with those making risk assessments. Again this is a rarely considered dynamic in the risk assessment (or ethical) process. In terms of the basic social psychology of the risk assessment interview it would be naive to maintain that this does not have the potential to impact on the nature and quality of risk assessments. The importance of such relations both in assessments and intervention processes can be paramount to the efficacy of such work.[4] This is rarely considered as an ethical issue. If such considerations have an impact on the risk assessment produced then these link to the rights of the individual and more general public rights. A fuller consideration of such ethical issues is warranted not only because this may make risk assessments more accurate, but also, and most crucially, because it is just to do so.

CONCLUSIONS

There may be a need to begin our understanding of risk assessment by first trying to understand the logic and power relations involved in the process. It may also be prudent to look more seriously and closely at the ethical issues associated with practice in this challenging area, particularly with a view to embracing a wider and richer ethical framework than traditional approaches. Above all there is the potential to significantly improve the quality of practice in terms of both its accuracy and justness.

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REFERENCES

1 Towl GJ, Crighton DA. Risk assessment with offenders. *Int Review Psychiatry* 1997;**9**:187–93.
2 Tversky A, Kahneman D. Judgement under uncertainty, heuristics and biases. *Science* 1974;**185**:1124–31.
3 Monahan J, Steadman HJ. Violent storms and violent people: how meteorology can inform risk communication in mental health law. *Am Psychol* 1996;**51**:931–8.
4 McNeill F, Batchelor S, Burnett R, *et al. 21st century social work—reducing re-offending: key practice skills*. Edinburgh: Scottish Executive, 2005.

With apologies to Albert: everything is *not* relative

This year marks the 100th anniversary of Einstein's annus mirabilis, in which he published four papers that transformed the world of physics. One of these earned him the Nobel prize, and another introduced the concept of relativity. With all due respect to his genius, this paper will argue that, at least when it comes to reporting the results of randomised controlled trials (RCTs), relative indices, such as the relative risk (RR) and the odds ratio (OR), tell only half the story, and that half is often wrong. The impetus for this editorial was the CAPRIE trial,[1] although the message applies to all trials that use relative indices.

The study found that there was a relative risk reduction (RRR) of 8.7% when patients in the three diagnostic groups (ischaemic stroke, heart attack, and peripheral artery disease) were combined. At first glance, this seems extremely impressive. However, the fact that the p level was a marginally significant 0.043, with over 17 500 patient years in each of the experimental and comparison groups, raises a flag that perhaps something is amiss, and that 8.7% should be looked at more closely. To explore this, let's imagine a much smaller trial, with only 50 patients in each of the two groups. In the treatment group, 20 patients die; in the control group, 30 die. This is summarised in table 1.

The risk of dying in the treatment group (R_T) is 20/50 = 0.40; and in the control group, R_C is 30/50 = 0.60. Hence, the RR is R_T/R_C, or 0.40/0.60 = 0.67. The absolute risk reduction (ARR) is $R_C - R_T$, or 0.60 − 0.40 = 0.20. Finally, the RRR is ARR/R_C, which is 0.20/0.60, or 33%. Just looking at those numbers, we would again be very tempted to use the drug as part of our usual practice. Let's repeat the study now, but with 5000 in each group and the same number of deaths, as in table 2.

In this case, R_T = 20/5,000, or 0.004; R_C = 30/5,000, or 0.006; and the ARR = 0.006 − 0.004 = 0.002. Now for the relative indices: RR = 0.004/0.006 = 0.67 and RRR = 0.002/0.006 = 33%. In this second situation, we have a drug that is virtually useless, yet the relative indices—RR and RRR—are identical to those in the first example. Obviously, we are not getting the full picture. That is why, whenever possible, *EBMH* also reports the number needed to treat (NNT), which is the reciprocal of the ARR. In example 1, the NNT is 1/0.2, meaning that five people must be treated to avoid one additional death. In the second example, the NNT is 1/0.002, or 500 must be treated to avoid one death. In the meantime, 499 people are exposed to any possible adverse risks of the drug, and they or the healthcare system must absorb the cost. Returning to the CAPRIE trial, the NNT for all events is 200 over two years, and for deaths it is 1165 at a cost of over $1000 a year in Canada.

The lesson is that ''relatively'' is fine for physicists, but clinicians also need absolute numbers and NNTs to make sense of trial results.

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REFERENCE

1 **CAPRIE Steering Committee**. A randomised, blinded trial of clopidogrel versus aspirin in patients at risk for ischaemic events. *Lancet* 1996;**348**:1329–39.

Table 1 Small hypothetical trial

	Died	Survived	Total
Treatment group	20	30	50
Control group	30	20	50
Total	50	50	100

Table 2 Larger hypothetical trial

	Died	Survived	Total
Treatment group	20	4980	5000
Control group	30	4970	5000
Total	50	9950	10000