Two risk and need assessment instruments used in probation services – an evaluation

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The performance and effectiveness of two assessment instruments, LSI-R and ACE, widely used by probation services, has been evaluated in an 18-month study. The study looked particularly at the instruments' ability to predict reconviction, and at their reliability in assessing risks of reoffending and offenders' needs. It also examined the instruments' potential for measuring changes related to reconviction risks which may take place during supervision. The main findings are reported here.

RISK AND NEEDS ASSESSMENT INSTRUMENTS

The LSI-R assessment (Level of service inventory – revised) consists of a two-page form with a list of 54 factors related to reoffending (such as criminal history, education, employment, family situation, attitudes towards crime, emotional and psychological factors and drug use). From these factors a 'Total LSI-R score' is calculated for the offender. There is some flexibility, in that probation officers can record their comments and where necessary 'override' the case management decisions indicated by the score.

ACE (Assessment, case recording and evaluation) is a series of separate forms – an initial assessment form, a supervision plan, a quarterly progress form, and a self-completion form for offenders. The ACE forms vary slightly between the different services implementing them, although there are core elements common to all services. The initial assessment covers both criminogenic and non-criminogenic needs. The components in the ACE assessment include accommodation, employment and education, family, finances, drug abuse and attitudes towards crime.

Key points

- Both LSI-R and ACE predicted reconviction much more successfully than chance levels. The proportion of accurate predictions from the assessments in the sample was 65% for LSI-R and 62% for ACE.

- Both assessment instruments were reliable in that different probation officers did not produce very different scores – a study of 10 probation officers who had experience in using ACE showed that 7 out of 10 were consistently quite close in their assessments, and a study of 35 offenders each assessed by two officers using LSI-R showed 83% agreement.

- Repeat assessments with an offender can produce higher risk/need scores although the risk/need factors have not changed. This disclosure effect is because the offender has disclosed more problems or the officer has learned more about the offender. However, disclosure effects were usually small and did not seriously affect the reliability of the instruments.

- When repeated assessments showed increases or decreases in scores during periods of supervision, these were significantly related to higher or lower levels of reconviction. For example, offenders whose ACE scores increased were over twice as likely to be reconvicted as those whose scores decreased.

- There appears to be scope to develop shorter assessment tools without much loss of reliability. For example, a shorter 'Screening Version' of the LSI-R using only 8 of the 54 factors appears to predict almost as well as the full version, although it does not provide the same amount of detail in the assessment of needs.

The views expressed in these findings are those of the authors, not necessarily those of the Home Office (nor do they reflect Government policy)

Definition of 'risk' and 'needs'

'Risk' in this study refers to the risk of further offences, as measured by reconviction.

'Needs' are aspects of an offender's circumstances, resources, behaviour, attitudes or functioning which are believed to be related to offending – hence 'criminogenic needs' or 'dynamic risk factors'.

Public protection has increasingly been seen as a central role for the Probation Service since prisoners serving medium or long sentences were made subject to supervision on release under the provisions of the 1991 Criminal Justice Act. Probation officers have been required, since 1992, to assess the potential 'risk' of all offenders with whom they come into contact. There was no widely used method of doing this other than relying on the judgement of individual probation officers. Reconviction predictors such as the Offender Group Reconviction Scale (OGRS) were developed to assist in risk assessment. However, the OGRS (Home Office, 1996) is based on 'static' or historical factors such as sex, age and criminal record and therefore does not measure the effect of change. 'Dynamic' factors such as criminogenic need and social factors can change while offenders are under supervision and are known to change the risk of reconviction (May, 1999). Probation services need evaluation techniques which provide reliable measures of such changes without waiting for the long follow-up periods needed in reconviction studies.

Two assessment instruments, LSI-R and ACE, have been widely used by probation services in England, Wales, Northern Ireland and the Channel Islands since the mid-1990s. LSI-R, originally developed in Canada (Andrews and Bonta, 1995), was designed for use as a risk/needs assessment system. ACE was developed in the mid-1990s through collaboration between the Warwickshire Probation Service and the Probation Studies Unit in Oxford University (Roberts et al., 1996). It was originally designed as an evaluation instrument based on the assessment of needs related to offending and did not produce a risk score. For this study, which looked at the performance of assessment tools in relation to risk and needs, the ACE Offending Related Score (ORS) is treated as a risk score.

The study

The study aimed to assess the effectiveness of the two instruments:
- in estimating risk of reconviction

- as a measure of need
- in terms of reliability (would they give different results if used by different practitioners?).

The study is based on initial assessment and reconviction data on 1,115 offenders assessed using ACE and 1,021 offenders assessed using LSI-R before March 1998. As these are two separate groups of offenders, OGRS scores were used on all offenders to control for differences between the two groups. This also acted as a 'benchmark' risk assessment with which to compare LSI-R and ACE. Reliability was also tested by looking at the assessment scores calculated by different probation officers. (For an analysis of probation staff's perceptions of the strengths and weaknesses of LSI-R and ACE see Aye-Maung and Hammond, 2000 and 2001.)

Risk predictions

The risk scores produced by LSI-R and ACE are significantly associated with reconviction and are therefore useful as risk assessments. Both LSI-R and ACE have much more accurate prediction rates for reconviction than those produced by chance. The proportion of accurate predictions from the assessments in the sample was 65% for LSI-R compared with 67% predicted by a revised version of OGRS (OGRS2); 62% for ACE compared with 66% predicted by OGRS2 (see Table 1). The relationship between predicted and actual outcomes also holds quite well across the full range of scores (see Figure 1).

Both LSI-R and ACE also predicted reconviction for serious offences and reconviction attracting custodial sentences at better than chance levels, but not well enough to make them appropriate for use as the main method of assessing dangerousness. When assessing the risk of reconviction for serious or dangerous offences, these instruments should be supplemented with other methods: for example, a detailed analysis of past episodes of dangerous behaviour to identify triggers, patterns and potential targets.

Reliability and disclosure effects

Reliability of LSI-R and ACE when used by different officers
When evaluating assessment instruments used by probation staff it is important to assess the extent to which differences in assessment scores may reflect differences in assessors rather than in those being assessed. A study of 10 probation officers who had experience in using ACE showed that 7 out of 10 were consistently quite close in their assessments. LSI-R was evaluated by comparing assessments made by different officers with the same

Table 1: Differences in assessment scores between cases reconvicted and not reconvicted over 12 months (all cases)

Score type	Not reconvicted		Reconvicted		Percentage predicted correctly
	No.	Average score	No.	Average score	%
LSI-R cases (No. = 948)	546	LSI-R = 17.25	402	LSI-R = 24.13	65
OGRS2					67
ACE cases (No. = 903)	510	ACE ORS = 18.34	393	ACE ORS = 25.46	62

Figure 1: Reconviction rates for LSI-R and ACE ORS compared with OGRS2
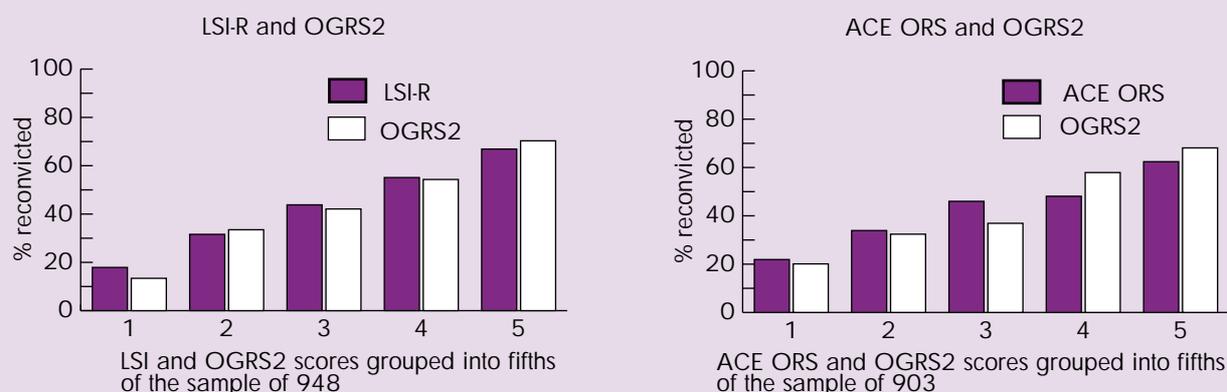
Note: Scores are grouped into fifths of the total sample ('quintiles') – thus quintile 1 is the fifth of the sample with the lowest score, quintile 5 the fifth with the highest score

offender. This was done either on the basis of separate interviews carried out close together (25 pairs) or on the basis of shared interviews (10 pairs). 83% of pairs showed differences of three points or less. These results suggest that both ACE and LSI-R are reliable in relation to probation officer differences. However, continuing attention to quality control and maintenance is recommended, as probation services become more used to these instruments. The quality of assessment may improve with practice or it may deteriorate as the innovation effect is lost. Continued monitoring of reliability would help to maintain the integrity of the assessment process.

Disclosure effects

Repeat assessments with an offender can produce higher risk or need scores although the risk or need factors have not changed. This is because the offender has disclosed more problems or the officer has learned more about the offender. It is important to assess the strength of this disclosure effect on instruments designed to measure progress of the offender under supervision, since an apparent increase in risk may be due to new disclosures rather than real lack of progress (as suggested by Aubrey and Hough, 1997).

Anecdotal evidence from probation staff suggests that disclosure effects are likely to cause differences between assessments made before sentence and those made after

sentence. For example, some officers suggest that illegal drug use was more likely to be disclosed after sentence. Comparisons of pre-sentence assessments with assessments carried out at the commencement of supervision confirm that some problems (particularly drug abuse) were more likely to be disclosed post-sentence. However, most factors showed no disclosure effects. Overall the effects were small and did not seriously affect the reliability of the instruments.

Risk related change measures

A dynamic risk/needs instrument should be able to provide a risk-related measure of change, i.e. changes in criminogenic need should be registered over time which are reflected in real changes in the risk of reconviction. A number of offenders in both ACE and LSI-R samples were reassessed during the course of supervision. For both instruments, increasing scores were significantly associated with higher reconvictions and decreasing scores with lower reconvictions (see Table 2). For example, offenders whose ACE scores increased were over twice as likely to reconvict as those whose scores decreased. The items which changed included some which are known to be strongly related to reconviction, such as drug abuse, lifestyle and pro-criminal attitudes. It is encouraging to see successful changes in these areas during supervision.

Table 2: ACE and LSI-R score changes from first to second assessment in relation to reconviction

Instrument	Initial score	Direction of change	Percentage reconvicted
			%
ACE	Low	Increase	68
	Low	Decrease	21
	High	Increase	69
	High	Decrease	40
LSI-R	Low	Increase	55
	Low	Decrease	26
	High	Increase	78
	High	Decrease	55

Developments in the instruments

There seems to be some scope to develop shorter versions of the assessment tools without much loss of reliability. For example, a shorter 'Screening Version' of LSI-R using only 8 of the 54 components of the full LSI-R appears to predict risk almost as well as the full version, although it would not provide a full enough assessment of need to prepare a thorough supervision plan. However, it could be used as a quick and reasonably reliable method of screening offenders to decide whether a full risk/needs assessment would be needed.

Developments in ACE have been aimed at improving the accuracy of risk prediction either by changing the range of items included in the score or adding 'static' factors (such as sex, age and number of previous convictions) to the score. A combination of static and dynamic factors can provide a satisfactory prediction of reconviction over 12 months. Three versions gave accuracy levels in predicting reconviction of between 65% and 69% on the study sample but further testing would need to be done on other samples of offenders.

Conclusions

This study indicates that risk and need assessment is a reliable and feasible method for use by probation services. These two instruments can be used effectively within the Probation Service as they:
- provide estimates of the risk of reconviction
- produce information about needs
- can evaluate the impact of rehabilitative work undertaken by probation services.

Both LSI-R and ACE can be reliably used over limited time periods (usually six months in this study) as measures of risk-related change. This is something which a solely static predictor such as OGRS2 cannot provide. Both LSI-R and ACE have had substantial periods of development and refinement (6 years for ACE, 20 years for LSI-R). This seems to be particularly important in developing an instrument, as it must be capable not only of performing in principle but also of being used conveniently as a routine part of probation practice. This has implications for the development of a new instrument, as there is no point in achieving accuracy if the instrument is so comprehensive that it cannot be readily used.

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