

The use of the Youth Level of Service/Case Management Inventory (YLS/CMI) in Scotland

Nina Vaswani, CYCJ



N^o 01

November 2013

Summary

The Youth Level of Service/Case Management Inventory (YLS/CMI) is a generic risk assessment tool to assess the risk of future offending in young people aged between 12 and 17. The tool is used in a number of areas in Scotland but had not previously been comprehensively tested for use with this population. The study looked at the results from more than 1,100 YLS/CMI risk assessments and found that it was a good predictor of re-offending for both males and females. The findings showed that the YLS/CMI was not very accurate at assessing the likelihood of re-offending if it was used with young people outside of the intended age range. The study also highlighted that when practitioners used the professional override then the accuracy of the YLS/CMI was often reduced. The findings support the use of the YLS/CMI within social work for information practice and decision-making, but highlight the need for further research to better understand how practitioners apply their professional judgement.

“The Youth Level of Service/Case Management Inventory (YLS/CMI) is a generic risk assessment tool to assess the risk of future offending in young people aged between 12 and 17”

Introduction

The principles of risk, need and responsivity (RNR) (Andrews et al., 1990) state that effective practice in reducing offending involves matching the intensity of the intervention to the young person's level of risk; that the intervention should address the specific needs that are contributing to the young person's risk level and that the intervention must be responsive to the young person's developmental stage, learning style and other personal characteristics and differences. Not adhering to the principles of RNR (such as providing a young person at low risk of offending with a high intensity service) can have unintended and unwanted consequences (Bonta et al., 2000).

It is therefore important that practitioners can accurately assess the likelihood of future offending in order to target interventions appropriately and to manage the risks that are posed in order to ensure the safety of the individual and their community. The way that practitioners have done this has evolved over time and can broadly be categorised into four 'generations'.

Early risk assessments centred mainly on unstructured clinical judgement, and have been criticised for lack of transparency and their inherent subjectivity to personal, professional, cognitive or other bias and limitations (Putnins, 2005). The second generation of risk assessments attempted to address these concerns by using assessments rooted in statistically derived risk factors such as offending history or gender. By their nature, these actuarial tools focused on static risk factors and, while viewed as more objective and accurate than the first-generation approach (Andrews et al., 2006), did not lend themselves to the principles of effective practice outlined above, as the static risk factors are not amenable to change by the offender or the practitioner. The third generation of tools were devised following criticism of these early attempts to assess risk, the emergence of an international evidence base about 'what works' in reducing offending and the identification of the associated needs that can be addressed in pursuit of that goal (Andrews et al., 2006). Third-generation assessment tools therefore have an additional purpose, in that they gather information on needs in order to guide interventions as well as providing for the classification of risk (Schwalbe, 2007). Fourth-generation tools take this approach one stage further, actively facilitating planning, case management, supervision and service delivery (Andrews et al., 2006).

Across youth justice, the development of actuarial risk assessment tools has historically been seen to provide the field with standard, quantifiable, empirically based and clearly defined criteria for decision making that can be readily and critically reviewed (Putnins, 2005; Onifade et al., 2008). In addition, meta-analytic studies have shown that actuarial risk assessment is more accurate than unstructured clinical judgement (Grove and Meehl, 1996) and structured professional judgement (Hanson and Morton-Bourgon, 2009). This is not a universally held view, however, and the practice of drawing conclusions about an individual's level of risk from statistics derived from group characteristics has been questioned (Hart et al., 2007; Cooke, 2010). In addition, the flexibility and ability of the clinical approach to respond to individual circumstances and contexts is still often viewed as beneficial (Putnins, 2005) and many tools now combine actuarial risk assessment with clinical judgement (Risk Management Authority, 2007). The debate about the merits of actuarially-based assessment versus clinical decision-making continues (Hart et al., 2007; Risk Management Authority, 2007; Cooke, 2010; Cooke and Michie, 2010; Craig and Beech, 2010; Murray and Thomson, 2010) and so will not be debated further in this *Focus*.

Aside from this debate, many studies have found that the YLS/CMI has predictive validity (that is, it can discriminate between recidivists and non-recidivists) (Catchpole and Gretton, 2003; Schmidt et al., 2005; Schwalbe, 2007; Onifade et al., 2008; Welsh et al., 2008; Olver et al., 2009; Viljoen et al., 2009). However, many studies have taken place in Canada, where the tool was developed, tested and normed, although some cross-cultural applicability has been reported among young people involved in offending in Japan (Takahashi et al., 2013). The main UK-based studies (Marshall et al., 2006; Rennie and Dolan, 2010) were small-scale, and undertaken in contexts that did not necessarily reflect how the YLS/CMI was broadly used in practice (for example, used retrospectively or only tested with higher tariff groups of young people in custody). This meant that there was a need to assess the YLS/CMI in Scotland, in a way that reflected how it was used in social work practice, and to begin to generate evidence that might inform the debate about the use of actuarial tools versus professional judgement.

Research questions

The questions to be answered in the study were:

- Does the YLS/CMI predict future recidivism?
- Does the YLS/CMI predict future serious violence?
- Does the YLS/CMI predict the volume of future offending?
- Does the YLS/CMI predict the speed of future re-offending?
- Does the use of professional judgement increase the accuracy of the YLS/CMI?

Method

The research looked at all YLS/CMI assessments carried out in one local authority area over a two-year period, and the final sample included 1,138 YLS/CMI assessments in respect of 883 young people aged between eight and 20. Assessments had been carried out to inform decision-making across a range of systems, from local decision-making about the allocation of social work resources to formal assessments for the children's hearings system or adult court. Thus, the sample included a wide spectrum of young offenders, from low-level young offenders living in the community to high risk offenders in secure care or custody. In addition, the analysis was undertaken without substantial use of quality control measures, meaning that the findings add to our understanding about how accurate the YLS/CMI is under typical social work conditions.

“Assessments had been carried out to inform decision-making across a range of systems, from local decision-making about the allocation of social work resources to formal assessments for the children's hearings system or adult court”

Results

Area Under the Curve (AUC) statistics were generated for the YLS/CMI. This is a measure of how accurately the YLS/CMI identifies recidivists (the *true positive rate*) while at the same time identifying those who do not re-offend (the *true negative rate*). Put simply, an AUC can be defined as the probability that a randomly selected individual who re-offended will score higher on the risk assessment in question than another randomly selected individual who did not re-offend (Catchpole and Gretton, 2003). The larger the AUC, the greater the accuracy of the tool, with an AUC of 1 representing perfect accuracy in identifying both offenders and non-offenders and an AUC of 0.5 representing predictive accuracy that is no better than chance (Craig and Beech, 2010). Thus, an AUC of 0.75 suggests that a randomly selected individual who re-offended will score higher on the risk assessment than someone who did not re-offend, 75% of the time. An AUC of 0.6 can be described as a moderate predictor, and 0.66 as a large predictor (Rice and Harris, 1995).

- Does the YLS/CMI predict future recidivism?

Yes. Young people who had re-offended within 12 months scored significantly higher on the YLS/CMI than those young people who did not re-offend within 12 months. The AUCs generated for general recidivism were up to 0.72 for males and 0.73 for females, meaning that the YLS/CMI was a good predictor of any future re-offending. However, in the small number of cases where the YLS/CMI had been used with young people aged over 18 the accuracy of the tool was reduced to the point where it was not statistically significant.

- Does the YLS/CMI predict future serious violence?

Yes. The AUCs for serious violence (murder, attempted murder, serious assault, robbery etc.) were up to 0.66 for males and 0.69 for females meaning that the YLS/CMI was a good predictor of serious violence, but that the YLS/CMI was more accurate at predicting general recidivism. Again, the use of the YLS/CMI with over 18s reduced the accuracy of the tool.

- Does the YLS/CMI predict the volume of future offending?

Yes. There were significant differences in the number of subsequent offences across the YLS/CMI risk and need classifications of low, moderate and high/very high. Young people categorised as low risk and need were charged with a median of one offence in the following 12 months, whereas young people categorised as high or very high went on to commit a median of six offences in the same timeframe.

- Does the YLS/CMI predict the speed of future re-offending?

Yes. As the categories of risk increased, the time elapsed before re-offending significantly decreased. Around half of young people categorised as low risk and need had re-offended within 12 months, whereas all young people categorised as very high risk and need had re-offended within approximately seven months.

- Does the use of professional judgement increase the accuracy of the YLS/CMI?

No. In the majority of assessments the professional judgement of the worker and the actuarial results generated by the YLS/CMI were in agreement. However, in around 14% of tests the worker completing the YLS/CMI used a function called the 'professional override' meaning that they used their professional judgement and knowledge about the circumstances of the offence or the young person to adjust the actuarial outcome (from low risk and need to 'moderate', for example). The use of the professional override substantially reduced the accuracy of the YLS to predict general recidivism and, in the case of serious violence, reduced the accuracy of the YLS/CMI until it was little better than chance.

Implications for practice

What does this mean for the use of the YLS/CMI in social work practice? The study suggests that the YLS/CMI is a strong predictor of the likelihood of re-offending within this population and therefore supports the use of the YLS/CMI within social work to inform practice and decision-making. However, the study also reinforces the notion of 'integrity' as applied to the use of evidence-based tools and approaches. It is clear that the YLS/CMI should not be used with young people for whom it was not intended (for example, over 18s).

The findings about the professional override are interesting and, as outlined below, are worthy of further exploration in order to be able to better support practitioners in their decision-making. Certainly this does **not** mean that the professional override should not be used; a social worker will bring important knowledge and experience to each individual assessment and this should not be disregarded. Yet while the YLS/CMI will never come close to being a perfect tool that can predict the future, it is sufficient to say that social work practitioners can have confidence in the YLS/CMI and should remain open-minded to the use of the professional override, but also exercise this power with caution. It is also important to note that accurate assessment of risk and need is only the start of the process, and what a practitioner does with that information, and how the risks are managed and the needs are met, is ultimately more important for improving outcomes and reducing risk.

Implications for future research

As the debate around the merits of actuarial risk assessment versus structured professional judgement unfolds, it will be even more important to generate robust and comprehensive evidence about the accuracy, or otherwise, of the different approaches to risk assessment. The ROC analysis employed in this research is frequently seen as the best way to assess predictive accuracy (Mossman, 1994, Rice and Harris, 1995) as it is less susceptible to variations in the base rate of re-offending in the sample. Yet this methodology is not immune from criticism, most notably that the AUC generated by a ROC analysis is not a complete measure of predictive validity and is liable to misinterpretation (Singh et al., 2013). This study used a range of methods, and was not reliant on the AUC alone to assess the predictive validity of the YLS/CMI, but future research should also consider using a range of performance indicators in order to offset their individual limitations (Singh, 2013).

Current opinion in risk assessment tends towards that of Structured Professional Judgement, most notably with the Youth Justice Board (YJB) in England and Wales' plan for the redevelopment of their standard Youth Justice assessment tool (Asset) into one that draws increasingly on the professional judgment of practitioners (AssetPlus). The willingness of the YJB to revise and develop their tool to reflect the latest developments in research, practice and policy is of clear benefit to practitioners, young people and the wider community. However, further research aimed at increasing understanding of *how* practitioners apply their professional judgment and formulate their own assessment and interpretation of risk, particularly when constrained by the realities of busy day-to-day practice rather than under ideal clinical conditions, will be essential to inform these developments.

References

- Andrews, D., Bonta, J. & Hoge, R. (1990). Classification for effective rehabilitation. *Criminal Justice and Behavior*, 17(1), 19–52.
- Andrews, D., Bonta, J. & Wormith, S. (2006). The recent past and near future of risk and/or need assessment. *Crime and Delinquency*, 52(1), 7–27.
- Bonta, J., Wallace-Capretta, S. & Rooney, J. (2000). A quasi-experimental evaluation of an intensive rehabilitation supervision program. *Criminal Justice and Behavior*, 27(1), 312–29.
- Catchpole, R. E. H. & Gretton, H. M. (2003). The predictive validity of risk assessment with violent young offenders: A 1-year examination of criminal outcome. *Criminal Justice and Behavior*, 30(6), 688–707.
- Cooke, D. (2010, February 15). More prejudicial than probative?: *The Journal of the Law Society of Scotland*. Retrieved from www.journalonline.co.uk/magazine/55-2/
- Cooke, D. & Michie, C. (2010). Limitations of diagnostics precision and predictive utility in the individual case: A challenge for forensic practice. *Law and Human Behavior*, 34, 259–274.
- Craig, L. & Beech, A. (2010). Towards a guide to best practice in conducting actuarial risk assessments with sex offenders. *Aggression and Violent Behavior*, 15, 278–93.
- Grove, W.M. & Meehl, P.E. (1996). Comparative efficiency of informal (subjective, impressionistic) and formal (mechanical, algorithmic) prediction procedures: The clinical–statistical controversy. *Psychology, Public Policy, and Law*, 2, 293–323.
- Hanson, R. & Morton-Bourgon, K. (2009). The accuracy of recidivism risk assessments for sexual offenders: A meta-analysis of 118 prediction studies. *Psychological Assessment*, 21(1), 1–21.
- Hart, S., Michie, C. & Cooke, D. (2007). Precision of actuarial risk assessment instruments: Evaluating the “margins of error” of group v. individual predictions of violence. *British Journal of Psychiatry*, 190(49), 60–5.
- Marshall, J., Egan, V., English, M. & Jones, R. (2006). The relative validity of psychopathy versus risk/needs-based assessments in the prediction of adolescent offending behaviour. *Legal and Criminological Psychology*, 11, 197–210.
- Murray, J. & Thomson, M.E. (2010). Applying decision making theory to clinical judgements in violence risk assessment. *Europe's Journal of Psychology*, 6(2), 150–171.
- Olver, M. E., Stockdale, K. C. & Wormith, J. (2009). Risk assessment with young offenders: A meta-analysis of three assessment measures. *Criminal Justice and Behavior*, 36(4), 329–53.
- Onifade, E., Davidson, W., Campbell, C., Turke, G., Malinowski, J. & Turner, K. (2008). Predicting recidivism in probationers with the Youth Level of Service Case Management Inventory (YLS/CMI). *Criminal Justice and Behavior*, 35(4), 474–83.
- Putnins, A. L. (2005). Assessing recidivism risk among young offenders. *Australian and New Zealand Journal of Criminology*, 38(5), pp. 324–39.
- Rennie, C. & Dolan, M. (2010) Predictive validity of the Youth Level Of Service/Case Management Inventory in custody sample in England. *Journal of Forensic Psychiatry and Psychology*, 21(3), 407–25.

- Rice, M. E. & Harris, G. T. (1995) Violent recidivism: Assessing predictive validity. *Journal of Consulting and Clinical Psychology*, 63(5), 737–48.
- Risk Management Authority (2007). *Research and practice in risk assessment and risk management of children and young people engaging in offending behaviours: A literature review*. Retrieved from <http://www.rmascotland.gov.uk>
- Schmidt, F., Hoge, R. & Gomes, L. (2005). Reliability and validity analyses of the Youth Level of Service/Case Management Inventory. *Criminal Justice and Behavior*, 32(3), 329–44.
- Schwalbe, C. S. (2007). Risk assessment for juvenile justice: A meta-analysis. *Law and Human Behavior*, 31(5), 449–62.
- Singh, J.P. (2013). Predictive validity performance indicators in violence risk assessment: A methodological primer. *Behavioral Sciences and the Law*, 31, 8-22.
- Singh, J.P., Desmarais, S.L. & Van Dorn, R.A. (2013). Measurement of predictive validity in violence risk assessment studies: A second-order systematic review. *Behavioral Sciences and the Law*, 31, 55-73.
- Takahashi, M., Mori, T. & Kroner, D.G. (2013). A cross-validation of the Youth Level of Service/Case Management Inventory (YLS/CMI) among Japanese juvenile offenders. *Law and Human Behavior*. Advance online publication. Doi 10.1037/lhb0000029.
- Viljoen, J., Elkovitch, N., Scalora, M. & Ullman, D. (2009). Assessment of re-offense risk in adolescents who have committed sexual offences: Predictive validity of the ERASOR, PCL:YV, YLS/CMI and Static-99. *Criminal Justice and Behavior*, 36(10), 981–1000.
- Welsh, J., Schmidt, F., McKinnon, L., Chattha, H. & Meyers, R. (2008). A comparative study of adolescent risk assessment instruments predictive and incremental validity. *Assessment*, 15(1), 104–15.



The study was conducted while the researcher was employed by Glasgow City Council. The full report by Nina Vaswani and Lisa Merone entitled "Are there risks with risk assessment? A study of the predictive accuracy of the Youth Level of Service-Case Management Inventory with young offenders in Scotland" can be accessed via the British Journal of Social Work website:

<http://bjsw.oxfordjournals.org/content/early/2013/03/20/bjsw.bct059.abstract>

This **Focus** can be accessed on www.cycj.org.uk