HM Prison & Probation Service

Development and validation of a screening assessment of psychosocial maturity for adult males convicted of crime

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Psychosocial maturation describes the process of the development of attributes that optimise personal growth and socialisation (Greenberger & Sorenson, 1974). Psychosocial immaturity is strongly related to youth and criminality, while psychosocial maturity is associated with desistance from crime. The aim of this study was to develop and validate a psychosocial maturity screening tool for young adult men (18+) convicted of crime, in order to better understand the needs of this group and to improve targeting and provision of services.

Key findings

- A ten-item maturity screening tool was created from factor analysis of items from the Offender Assessment System (OASys). The tool was found to be valid and reliable.

- Scores on the OASys maturity screening tool were correlated significantly with age and with risk of reoffending.

- The OASys maturity screening tool improved the ability of a static risk assessment tool and age in predicting one-year proven reoffending rates.

- Those who were less mature according to the OASys maturity screening tool were younger in age, and were a higher risk of proven reoffending than those who were more mature. Less mature individuals had higher rates of proven reoffending than were predicted by their OGRS3 scores. The reoffending rates of the more mature individuals were in line with those predicted by their OGRS3 scores.

- The OASys maturity screening tool has potential to inform the commissioning of appropriate services and interventions by identifying those who have lower psychosocial maturity.

- The relationship observed between maturity and proven reoffending suggests there would be value in incorporating assessment of maturity into the management of young adult men convicted of crime, so that issues relating to maturity can be appropriately addressed.

The views expressed in this Analytical Summary are those of the author, not necessarily those of the Ministry of Justice (nor do they reflect Government policy).

Context

Psychosocial maturity is made up of three components: responsibility, temperance and perspective (Steinberg & Cauffman, 1996).

- *Responsibility* involves having a clear identity and an individuated sense of self, and resistance to peer influence.

- *Temperance* refers to the ability to regulate and manage emotional states, particularly suppression of aggression, and impulse control. Studies have shown that higher executive functioning, which includes impulse control, and regulation and interpretation of emotions, are housed in the last areas of the brain to mature, and continue to develop well into adulthood (Johnson et al., 2009).

- *Perspective* involves the ability to see beyond oneself when considering a problem, to consider others' perspectives, the wider context in which the problem sits, and future orientation. Brain imaging studies suggest that the regions of the brain responsible for foresight and planning continue to mature into the mid-twenties (Casey, Tottenham, Liston & Durston, 2005).

Preventing victims by changing lives

Psychosocial immaturity is strongly related to youth (Bryan-Hancock & Casey, 2010), and criminality (Monahan, Steinberg, Cauffman & Mulvey, 2013), whereas psychosocial maturity is implicated in desistance from crime (Monahan et al., 2009). Research also suggests that imprisonment can damage the development of maturity, at least temporarily (Dmitrieva, Monahan, Cauffman & Steinberg, 2012). This is likely to do with the absence of pro-social influences from family and non-criminal peers, and the absence of practising the skills associated with maturity. Given the link between psychosocial immaturity and antisocial behaviour, there has been interest in how this concept could be relevant to better understanding those young adults who encounter the criminal justice system. Prior et al. (2011) suggested that the Offender Assessment System (OASys; Home Office, 2006), a risk and needs assessment tool used with individuals in prison and probation who have been convicted of crime, could provide a 'partial means' of assessing psychosocial maturity in young adults. The Harris Review (2015) into self-inflicted deaths of 18-24 year olds in custody also recommended further examination of the issue of psychosocial maturity in this group. The review called for a better understanding of the concept of maturity, which should be a primary consideration when making decisions about this cohort. Specifically, the review recommended development of a tool to measure maturity. Development of a tool to improve the targeting and provision of services to young men convicted of crime, and addressing those needs related to immaturity, might go some way to mitigate the potential impact of imprisonment on psychosocial maturation.

This study aimed to develop and test a screening tool for psychosocial maturity with men managed in custody in England and Wales. The tool was derived from OASys items. Hypotheses were that a tool comprised of OASys items covering the key components of psychosocial maturity would demonstrate good reliability and validity[1]. As men and women may mature at slightly different rates, and maturity may manifest itself in different ways among these groups, the current research project focused on men only.

Method

Samples:

Three different samples from three different datasets were used in the study.

1. OASys dataset: large dataset consisting of 43,102 men who had been given a prison sentence, were in prison in 2014 and who had OASys assessments with tolerable levels of missing data on the variables of interest. This dataset was used to develop the OASys maturity screening tool.

2. Self-report dataset: 166 male prisoners from HMP and YOIs Rochester, Brinsford and Portland, who completed a set of self-report measures. This dataset was used to compare OASys maturity screening tool scores with scores on another, more comprehensive measure of psychosocial maturity.

3. Reoffending dataset: 47,169 male prisoners who started a prison sentence in 2010, for whom one-year proven reoffending rates were available, and for whom OASys scores were available. This dataset was used to examine the links between maturity (as measured by the OASys maturity screening tool) and reoffending.

Development of the OASys Maturity Screening tool

OASys is a structured assessment of static and dynamic[2] reoffending risk factors used to aid offender management. OASys is used throughout Her Majesty's Prison and Probation Service (HMPPS; formerly National Offender Management Service; NOMS) with individuals aged 18 and over who are serving custodial sentences of at least 12 months or who are serving community sentences involving supervision. To minimise the resource impact of the maturity screen, this tool was produced using existing assessments, as it was made up of items within OASys. Items are given a score of 0, 1 or 2 depending on the level of presence, as determined by the trained rater (one item has a scoring of 0 or 1, rather than 0, 1 or 2).

Items within OASys were scrutinised and 12 items were identified as measuring the three aspects of psychosocial maturity, and had tolerable levels of missing data. These were subject to factor analysis to generate the maturity

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[1] Reliability refers to an assessment of the accuracy of the tool and validity refers to an assessment of how well the tool measures what it purports to measure.

[2] Static risk factors are relatively fixed, cannot be deliberately changed and have a reliable relationship with offending. Examples include age and criminal history. Dynamic risk factors can also be described as criminogenic needs, and are factors that relate to offending and are amenable to change. Examples include problem solving and impulsivity.

tool (using the OASys sample), which was then subject to reliability and validity testing.

Psychosocial Maturity Composite Measure

A psychosocial maturity composite measure (Steinberg, Cauffman, Woolard, Graham & Banich,3 2009) was used to test the convergent validity of the OASys maturity screening tool. This composite measure is derived from five tested and validated self-report measures, each measuring a feature commonly associated with psychosocial maturity. The following measures make up the composite score (with high scores equating to greater maturity):

- Barratt Impulsiveness Scale (Patton, Stanford & Barratt, 1995)
- Future Orientation Scale (Steinberg et al., 2009)
- Resistance to Peer Influence Scale (Steinberg & Monahan, 2007)
- Sensation Seeking Scale (Zuckerman, Eysenck & Eysenck, 1978)
- Risk Perception Scale (Benthin, Slovic & Severson, 1993)

To test convergent validity[3] and predictive validity[4] of the OASys maturity screening tool, a sample of prisoners from three prisons (HMP and YOIs Rochester, Brinsford and Portland, N = 166) completed the five self-report measures in order to produce the psychosocial maturity composite score.

Predictive validity was further tested by examining the differences in actual reoffending rates versus predicted reoffending rates in individuals scoring high and low on the OASys maturity screening tool. Predicted reoffending rates were obtained using the Offender Group Reconviction Scale 3 (OGRS3; Howard et al., 2009), which is an actuarial predictor of general reoffending used in England and Wales, with good predictive validity (Yang, Wong & Coid, 2010). It includes static factors only, and provides an estimate of percentage likelihood (prediction) of proven reoffending committed within one or two years of the start of a community sentence or discharge from custody.

Limitations

The OASys maturity screening tool was developed using information that is routinely available on nearly all young adults in custody, which may have resulted in production of a suboptimal tool. However, the tool is not intended to be used on an individual level. It is recommended that further, more in-depth assessment should be conducted for any individual 'screened' as having maturity issues.

Further limitations include:

- the use of self-report measures as a marker of maturity in some of the analyses,
- the self-selection of the sample who completed these self-report measures,
- the low response rate of the self-report sample,
- the higher than average level of maturity in the self-report sample compared to the OASys sample, and
- large amounts of missing data in all three datasets used within the research.

Results

Construct Validity[5] and Reliability of the OASys maturity screening tool

The OASys sample was randomly split in two, so that exploratory factor analysis could be performed on one half of the sample, and the structure could then be tested again using the second half of the sample. Exploratory factor analysis (EFA, oblique rotation, promax) was performed on the 12 items using the first half of the sample. A three-factor solution was specified, which loosely mapped onto the three components of psychosocial maturity (see Table 1). Two items were removed due to low loadings (<.30), and because the internal consistency of the factors onto which they loaded increased with their removal. The internal consistencies of the final three factors were poor to adequate, though the internal consistency of the overall scale was adequate: perspective and temperance, α = .75; responsibility - self, α = .70; responsibility - peer, α = .51; total scale, α = .74. This structure was confirmed on the second half of the OASys sample. Since the overall scale had adequate internal consistency, the remainder of the results focus on the total scale.

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[3] Refers to the degree to which two measures of constructs that theoretically should be related, are related.
[4] The extent to which results on a test is related to later performance or outcome that the test was designed to predict or should be able to predict.

[5] The ability of a tool to measure the psychological concept being studied

Scores were computed based on the 10-item scale (by summing the score for each of the 10 items, which are given a score of 0, 1 or 2 for most items, but 0 or 1 for one item), which was referred to as the OASys maturity screening tool score. The higher the score (range 0-19), the more mature an individual is. The score for the total scale was used for the remainder of the analysis.

Table 1: Items in the OASys maturity screening tool and Factor Loadings

Items	Factor 1: Perspective and Temperance ($\alpha = .75$)	Factor 2: Responsibility - Self ($\alpha = .70$)	Factor 3: Responsibility - Peer ($\alpha = .51$)
Lack of awareness of consequences of actions (S11Q7)	.81		
Poor problem solving skills (S11Q6)	.71		
Poor Perspective Taking (S11Q9)	.64		
Recklessness and risk taking (S7Q5)	.40		
Impulsive (S11Q2)	.38		
Poor temper control (S11Q4)	.32		
Difficulties coping with life (S10Q1)		.80	
Has low or overly grandiose self-image (S10Q4)		.67	
Easily influenced or manipulated by criminal associates (S7Q3)			.85
Pressurised or led into offending by others (S2Q7)			.52

Convergent Validity of the OASys maturity screening tool

A Pearson's correlation between the psychosocial maturity composite self-report measure score and the OASys maturity screening tool score was significant ($r = .49$, $p < .001$). Convergent validity of the OASys maturity screening tool was therefore confirmed.

Criterion Validity[6] of the OASys maturity screening tool

Criterion validity was assessed using the OASys dataset. A Pearson's correlation between the OASys maturity screening tool score and age was significant ($r = .23$, $p < .000$); as age increases, scores on the OASys maturity screening tool increase (indicative of greater maturity).

A t-test was conducted to compare the overall maturity score between those aged 18-24 and those aged 25 or over. Significant differences were found between the groups, with the younger age group scoring significantly lower (having lower levels of maturity) than the older age group (t (43,088) = -32.54, $p < .001$). A Pearson's correlation between the OASys maturity screening tool score and OGRS3 risk was significant ($r = -.38$, $p < .001$); as static risk increases maturity scores decrease. An ANOVA further found significant differences in OASys maturity screening tool total scores between OGRS3 risk bands (F (4, 43090) = 1662.83, $p < .001$), with maturity decreasing with every increasing risk band.

Predictive Validity of the OASys maturity screening tool

The median split of scores on the self-report composite score was used as a marker for maturity from which to assess the predictive validity of the OASys maturity screening tool. The self-report sample were split into high and low maturity groups based on their self-report composite scores, and receiver operating characteristic analyses (ROC) were used to establish how well the OASys maturity screening tool could predict membership to these high or low maturity groups. The tool was adequate in predicting membership to high/low maturity groups based on this median split, with an AUC of .66. The sensitivity and specificity of the tool was examined; a split of 10 (10 or more being high maturity, 9 or less being low maturity) on the OASys maturity screening tool produced the fewest false negative and false positives, and the greatest number of true negatives and positives. A split of 10 on the OASys maturity screening tool could therefore potentially be used as a marker for high and low maturity.

Using the reoffending data hierarchical logistic regression was performed to examine the incremental validity of the OASys maturity screening tool. OGRS3 was entered in the first step, followed by OGRS3 and age, followed by OGRS3, age and the maturity score. Interactions between maturity and age, and maturity and OGRS3 were entered in the final two stages. Table 2 shows that the output for the best fitting model was OGRS3, age, maturity and an interaction between maturity and age. In Model 3, without the interaction term added, the maturity score has significant predictive value in determining those who were proven to have reoffended within one year, independent of static risk of reoffending and age. According to this model, with every increase in 1 on the maturity scale, the odds for reoffending decrease by 5% whilst controlling for OGRS3 and age. However, when an interaction term maturity*age is included, the maturity score on its own is no longer predictive, suggesting that the effect of maturity on reoffending is dependent on age. In other

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[6] Extent to which a measure is related to an outcome.

words, the effect of maturity on reoffending is different for individuals of different ages, and is more predictive for the younger individuals. To explore this further, we examined levels of high/low maturity by age and risk, and reoffending (see subsequent section).
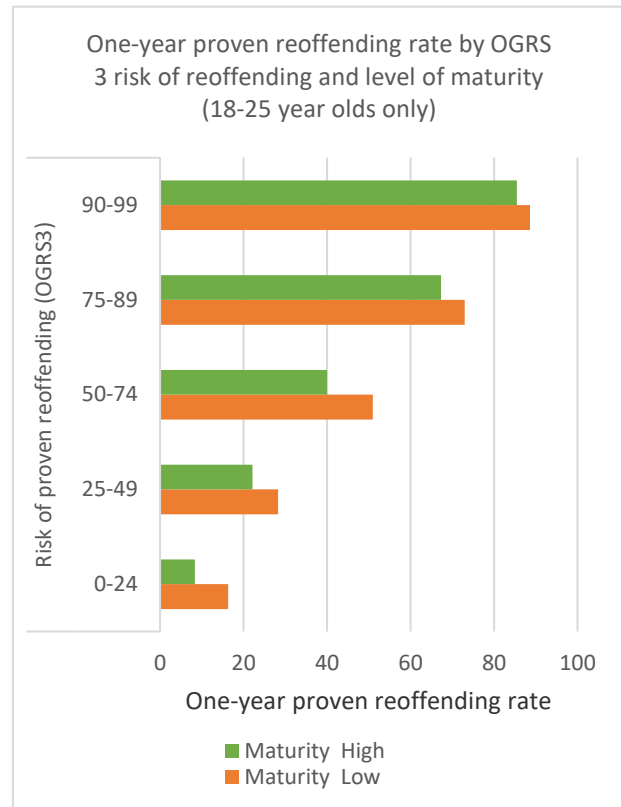
Table 2: Regression predicting one-year reoffending rates

	B	SE	Wald	P	Exp (B)
Model 1					
OGRS3	.05	.001	8044.48	.000	1.05
Constant	-2.62	.029	7927.57	.000	0.07
Model 2					
OGRS3	.05	.001	9312.93	.000	1.06
Age	.01	.001	101.01	.000	1.01
Constant	-3.06	.054	3253.75	.000	0.05
Model 3					
OGRS3	.05	.001	8044.48	.000	4.05
Age	.012	.001	106.64	.000	1.01
Maturity	-.05	.003	251.81	.000	0.95
Constant	-2.46	.065	1416.51	.000	0.09
Model 4					
OGRS3	.05	.001	8052.82	.000	1.05
Age	.03	.003	70.99	.000	1.03
Maturity	-.001	.010	.019	.891	0.99
Maturity*age	-.002	.000	26.42	.000	0.99
Constant	-2.95	.115	654.30	.000	0.05

Incremental Validity[7] of the OASys maturity screening tool

The OASys maturity screening tool was further used to explore levels of maturity in a large prison sample with proven reoffending data. When the reoffending sample was split at the tool's optimum sensitivity and specificity (9 and lower = low maturity, 10 and higher = high maturity), and by OGRS bands, there was a clear relationship between maturity and reoffending outcomes. Individuals who have higher maturity have lower reconviction rates than those of the same risk band who have lower maturity levels. This pattern is observed for all OGRS3 risk bands, but is most prominent amongst those in the lowest risk band. The same pattern emerged when just including those in the younger age bracket (18-25), as shown in Figure 1.

Figure 1: One Year Reoffending Rates by Risk Bands and level of maturity (18-25 year olds)

One-year proven reoffending rate by OGRS 3 risk of reoffending and level of maturity (18-25 year olds only)

Conclusions and Implications

A 10-item OASys maturity screening tool was developed, which had adequate construct validity, adequate internal consistency, good convergent validity, good criterion validity, adequate predictive validity and which added to the predictive power of OGRS3 and age (when entered as an interaction term with age) in predicting proven reoffending outcomes. Although the individual factors of the tool had only poor to adequate internal consistency, the overall tool, which measures an overall maturity factor, had adequate internal consistency. Likewise, the predictive validity of the tool, as determined by predicting high/low maturity according to the composite measure, was only adequate. The reason for this could be due to problems with the composite measure, which are highlighted in the limitations section, but include issues to do with the self-report nature of the composite measure. Considering the other reliability and validity markers were relatively good, on balance we conclude that the OASys maturity screening tool demonstrated, overall, adequate to good psychometric properties. However, we suggest that further research should be conducted to test this position.

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[7] Used to determine whether a new assessment will increase the predictive ability beyond that provided by an existing method of assessment

This study suggests that it is possible to screen for maturity in a meaningful way, using a tool derived from OASys items. The fact that there appears to be a strong relationship between maturity, risk and proven reoffending outcomes underlines the need to take into account maturity in the management of men who have committed crime. This tool could usefully be used to better understand and respond to the needs of this group, and to support decisions about the commissioning of interventions, and sentence planning for young adults. Combining assessment of risk of reoffending with the assessment of maturity, could help to target interventions to those most in need, and most likely to benefit from, intervention. Implementation plans need to consider the benefits of the information this tool could provide in responding to the needs of younger adults in prison, against the resource and training implications of use.

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