

Psychiatric disorders, substance use, and executive functioning in older probationers

Abstract

Although the number of older people on probation has increased rapidly in the past decade, this population has received little research attention. This study examines the mental health, substance use, and executive functioning of older probationers. Thirty-two male probationers aged fifty and older were recruited from probation services in the Thames Valley and administered validated semi-structured interviews for psychiatric disorders, symptom checklists for depression and substance use, cognitive impairment screens, and neuropsychological tests of executive functioning. We found that older probationers presented with a high prevalence of mental health difficulties (overall caseness 69%, 95% CI: 53-85) that exceed estimates in the older general population. Around one third of participants (31%, 95% CI: 20-50) presented with clinically relevant symptoms of depression and alcohol abuse. However, in comparison to normative data, older probationers did not present with deficits in executive functioning. These preliminary findings can be used to inform future research with older probationers.

Keywords: Probation, mental health, executive functioning, substance abuse, older people

Introduction

The number of people aged over 50 in the criminal justice system has grown rapidly in recent years. Between 2006 and 2016, the number of men aged 50 and older serving community or suspended sentences doubled, and exceeded 10,500 by the end of 2016 (Ministry of Justice [MOJ] 2017). The growth of the older adult population does not fully explain this increase; the rise in reported sex crimes, increased use of custodial sentences, longer sentences and post-release supervision periods are contributing factors (Codd & Bramhall, 2002; Howse, 2003; Office for National Statistics, 2015). Sexual offences are disproportionately represented in groups of older men who offend and account for 48 to 62% of offences in prison and probation samples (Codd & Bramhall, 2002; Curtice, Parker, Wismayer, & Tomison, 2003; Fazel, Hope, O'Donnell, & Jacoby, 2001; Hayes, Burns, Turnbull, & Shaw, 2012; Kennedy & Kitt, 2013).

Older people who offend have distinct criminological profiles and mental health needs and it has been suggested that services for them cannot be based on information from younger offending groups or elderly people in the community (Fazel & Grann, 2002). Furthermore, the criminal justice system may not be the most appropriate service to meet their needs (Yorston & Taylor, 2006). It is important to have an understanding of older probationers in order to implement effective preventative and rehabilitation strategies (Brooker, Syson-Nibbs, Barrett, & Fox, 2009; Lewis, Fields, & Rainey, 2006). The chaotic lifestyles typically reported in many people who offend are considered to result in a health status 10 years older than someone in the general population (Cooney & Braggins, 2010; Omolade, 2014). Consequently, a cut-off of 50 years has been used to study old age in this group (Hayes et al., 2012).

There is a paucity of research on the mental health of older probationers. Probationers of all ages have more mental health needs than the general population, and co-morbidity is

common (Sirdifield, 2012). An epidemiological survey in one English county identified that 39% of probationers had a mental disorder, 48% personality disorder and 60% substance use problems (Brooker, Sirdifield, Blizard, Denney, & Pluck, 2012). There has been a growing interest in the health and social needs of older people in prison in recent years, but it is important to look at other areas of the criminal justice pathway. Neuropsychological studies with older offending groups have primarily focused on generalised cognitive impairment and dementia and less is known about distinct neuropsychological domains such as executive functioning (Fazel & Grann, 2002; Hayes et al., 2012). Executive functioning is an umbrella construct used to define a range of processes that enable individuals to perform purposive, goal-directed, and self-serving behaviours (Lezak, Howieson, Bigler, & Tranel, 2012). There is yet to be consensual agreement on an operational definition for what processes constitute executive functions (Andrewes, 2015) although it is generally accepted that working memory, cognitive flexibility, planning, inhibition, initiation and monitoring of action are types of executive function (Barkley, 2012).

Studies on executive functioning in older offending groups have yielded inconsistent findings. One investigation assessed executive functioning in male prisoners aged over 59 and compared the performance of those convicted of sex offences to those convicted of non-sex offences. No differences were found between these groups or when compared to data from older community controls (Fazel, O'Donnell, Hope, Gulati, & Jacoby, 2007). This has been recently confirmed in an Australian study (Rodriquez & Ellis, 2017). However, other research reports the opposite finding (Combalbert et al., 2016).

The aim of this study is to examine the mental health, substance use and executive functioning in a sample of older male probationers. The executive functions of mental flexibility and response inhibition will be a focus as difficulties in these areas might predispose people to criminal behaviour. Mental flexibility is the capacity to adapt and shift

thinking in changing situations (Meltzer, 2014). Reduced mental flexibility is expected to prevent people who offend from switching to more functional behaviours or finding new solutions to problems (Broomhall, 2005; Meijers, Harte, Jonker, & Meynen, 2015). Response inhibition is the process of suppressing responses that distract from, and interfere with, goal-directed behaviour (Mostofsky & Simmonds, 2008). It is a form of attentional control that allows one to resist temptations and impulsive action (Diamond, 2014).

Information in these areas can guide future research and contribute to knowledge on this population that can ultimately be used to inform offender rehabilitation, risk assessment and preventative strategies (Brower & Price, 2001; de Brito & Hodgins, 2009; Hancock, Tapscott, & Hoaken, 2010). We hypothesised that older probationers would have higher rates of psychiatric disorders and substance use than the general population, would obtain lower executive functioning scores than the normative average, and that these executive functioning scores would negatively correlate with age, drug, alcohol, and depression scores.

Method

Sample

Thirty-two male probationers, aged 50 years and older, were recruited from various probation sites within Berkshire, Oxfordshire, and Buckinghamshire. Recruitment took place over a five-month period. Probation services are provided by the National Probation Service (NPS) and the Community Resettlement Companies (CRCs). The NPS supervise offenders assessed as high risk and all sex offenders, while the CRCs supervise all other probationers.

Inclusion criteria required participants to be currently supervised by a probation service within the community, aged at least 50 years old, and male. Due to the small number of older women on probation in the target sites, they were excluded to decrease demographic variability and to protect anonymity. Probationers were also excluded if their first language was not English, if they could not provide informed consent, or if they raised significant risk

concerns (as indicated by probation staff). These wide inclusion criteria and narrow exclusion criteria were decided upon in attempt to recruit as representative sample of older probationers as possible. See Figure 1 for a flowchart illustrating recruitment into the study.

Measures

Test of Premorbid Functioning (TOPF)

The TOPF (PsychCorp, 2009) estimates premorbid intellectual functioning and was used to provide descriptive information on the sample as a proxy measure of general intellectual functioning. Subjects are required to read phonetically irregular words of increasing difficulty. Numbers of correct responses are scored, adjusted for education, and converted to an estimated full-scale intelligence quotient (FSIQ) score. The TOPF is considered a valid and reliable measure that correlates highly with the WAIS-IV FSIQ scores (PsychCorp, 2009; Watt, Gow, Norton, & Crowe, 2016).

Verbal Fluency test: Delis-Kaplan Executive Function System (D-KEFS)

The Letter Fluency and Category Fluency conditions from the D-KEFS verbal fluency test (Delis, Kaplan, & Kramer, 2001) were used to assess mental flexibility. On the Verbal Fluency tests Subjects are asked to spontaneously produce as many words they can in one minute following pre-specified rules. The Verbal Fluency tests have been used in a range of studies with forensic samples (Morgan & Lilienfeld, 2000), including older offending groups (Combalbert et al., 2016; Fazel et al., 2007). The D-KEFS Letter and Category fluency tests have acceptable validity and reliability (Delis et al., 2001).

Color-word interference test: D-KEFS

The inhibition condition on the D-KEFS colour-word interference test (Delis et al., 2001) was used as a measure of response inhibition. The inhibition condition on this test simulates the traditional Stroop task (and will be referred to as the Stroop test). Subjects are shown a list of colour words printed in different colour ink and are asked to name the colour of the ink and

not the read the word. The D-KEFS Letter and Category Fluency tests have acceptable validity and reliability (Delis et al., 2001). This specific test has been used with forensic samples (Broomhall, 2005; Hancock et al., 2010).

Mini-International Neuropsychiatric Interview (MINI 5.0.0)

The MINI (Sheehan et al., 1998) is a brief diagnostic interview that assesses current and past symptoms of mental disorders, based on the ICD-10 (World Health Organization, 1993) and the DSM-IV (American Psychiatric Association, 2000) criteria. The subject is asked a range of screening questions for different psychiatric disorders and symptoms. It is recognised to have good reliability and validity and has been used widely in forensic research, including with probationers and elderly prisoners (Brooker, et al., 2012; Combalbert et al., 2016; Lurigio et al., 2003; Rivlin, Hawton, Marzano, & Fazel, 2010).

Geriatric Depression Scale – short form (GDS-15)

The GDS-15 (Yesavage et al., 1983) measures current symptoms of depression. One point is scored for each of the depression criteria met (with a maximum score of 15) and a score of five is used as a cut-off for likely depression. The GDS-15 is regarded as a good screening tool for major depression symptoms in older populations with acceptable sensitivity and specificity (Almeida & Almeida, 1999). Using a cut-off score of four or five, the GDS-15 has acceptable reliability and validity across different ages, genders, and health statuses (Nyunt, Fones, Niti, & Ng, 2009). The GDS-15 has been used in research with older forensic groups (Murdoch et al., 2008).

Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) is used to screen for risky or harmful alcohol use across 10 multiple-choice questions (scored from zero to four). It has a maximum score of 40 and scores of eight and over indicate hazardous drinking. The AUDIT has satisfactory levels of validity and reliability (de Meneses-Gaya, Zuardi, Loureiro,

& Crippa, 2009). It is a measure routinely used by the NPS and has been used in research with probationers (Brooker et al., 2012).

Drug Abuse Screening Test – short form (DAST-10)

The DAST-10 (Skinner, 1982) is a brief 10-item self-report screening tool that assesses problematic drug use. Positive symptoms of drug abuse score one point, and there is a maximum score of 10. A score of three or more indicates drug abuse or dependence. The DAST-10 has moderate to high levels of validity and reliability (Yudko, Lozhkina, & Fouts, 2007). It has been used in research with probationers (Brooker et al., 2012).

Six-Item Cognitive Impairment Test (6CIT)

The 6CIT (Katzman et al., 1983) is a six-item brief screening tool assessing cognitive deficits across domains of memory, orientation, and calculation/attention. A higher score indicates more impairment, with a total possible score of 28 (all items incorrect). Scores of zero to seven are within the normal range and scores of eight and over indicate difficulties warranting further assessment. Screening tools such as the 6CIT have been recommended for use with older forensic samples (Curtice et al., 2003), but not specifically validated for older probationers.

Procedure

A data analyst from probation services identified all male probationers aged 50 years and older together with the name of their probation officer. The researcher contacted each of these probation officers with the aim to recruit all identified cases. The researcher provided the probation officers with a staff information letter, and requested that they invite their client to participate with an invitation letter and information sheet. If the probationer was interested in participating in the project, the probation officer arranged for the researcher to meet them at the probation office as part of a routine appointment. Assessment sessions lasted on average one hour. Each participant was interviewed to obtain demographic and clinical

information (age, ethnicity, educational and occupational history, current medication, history of any psychiatric, cardiovascular, or neurological disorders including hospitalisation for a head injury) that could be used to inform neuropsychological test interpretation. The study measures were then administered in a standardised order. Every participant consented to the researcher accessing their probation record, and after the assessments were completed details of participants' index offence and risk scores were recorded. Risk scores were calculated using the Offender Group Reconviction Scale – version 3 (OGRS [Taylor, 1999]). The OGRS predicts risk of reoffending within one and two years using a logistic regression model incorporating criminal history and demographic factors.

Data analysis

Statistical analyses were completed using SPSS (version 24.0), for Mac. All neuropsychological test scores were crosschecked by a psychology doctoral student independent to the authors. Each participant's raw scores on the neuropsychological tests were converted to an aged-scaled score using the test manual. One sample *t*-tests were used for the between-group analyses where these scaled scores were compared to the average scaled score for the normative sample (Delis et al., 2001). There were two items of missing data and statistical analyses were completed with these data omitted. Correlation analyses were used to assess the relationship between scores on these tests and depression, drug and alcohol scores and age as well as years of education and TOPF scores. Normality and linearity assumptions were not met for all of these variables, therefore non-parametric correlation methods were favoured. Descriptive statistics were used to present psychiatric and substance use scores.

Results

Table 1 provides descriptive information on the participants. According to the MINI, 69% of participants scored case positive for clinically meaningful symptoms, with a high proportion

of these participants (73%) presenting with co-morbidity (Table 2). The three most common current disorders were depression (25%), agoraphobia (19%), and alcohol abuse or dependence (19%).

Measures of Executive Functioning

On the Letter Fluency test, participants obtained higher scores ($m = 12.3$, $sd = 3.4$) than the normative sample ($m = 10$, $sd = 3$): $t(31) = 3.9$, $p < .001$ (95% CI of mean difference: 1.1 - 3.6) with a medium effect size ($d = 0.7$). Scores on the Category Fluency test were also higher ($m = 12.8$, $sd = 3.0$) than the normative sample ($m = 10$, $sd = 3$), $t(30) = 5.3$, $p < .001$ (95% CI of mean difference: 1.8 - 3.9) with a large effect size ($d = 1.0$). On the Stroop test, scores ($m = 10.9$, $sd = 2.7$) were higher than the normative sample ($m = 10$, $sd = 3$), but not significantly so, $t(30) = 1.9$, $p = .07$ (95% CI of mean difference: -0.1 - 1.9), with a small effect size ($d = 0.3$). None of the participants had difficulties on the naming and reading conditions. Using Spearman's Rank Order Correlation co-efficient the only significant relationships identified were between TOPF and Letter Fluency scores ($r_s = .43$, $p = .016$) and TOPF and Stroop scores ($r_s = .49$, $p = .006$).

Discussion

This study on 32 older probationers examined mental health, substance use, and executive functioning using validated semi-structured interviews. Over two-thirds of the sample presented with clinically relevant mental health symptoms, with high rates of co-morbidity. Consistent with studies investigating mental health in older prisoners, two of the most prevalent conditions identified were current depression and alcohol abuse (Hayes et al., 2012). Rates of depression were more similar to prevalence rates observed in older prisoners (30% [Fazel et al., 2001]; 34% [Hayes et al., 2012]) than to older adults in the general population (UK survey estimates 6 to 14% [McManus, Meltzer, Brugha, Bebbington, & Jenkins, 2007]). Rates of alcohol abuse and dependence were comparable to rates in men

aged 45 years and older in the general population (17 to 30% in a UK household survey [McManus et al., 2007]) and older prisoners (Hayes et al., 2012) but lower than rates identified in younger probationers (56% [Brooker et al., 2012]). Resettlement back into the community, experiences of loss, and the impact of a criminal conviction on relationships and occupations may predispose older probationers to mental health difficulties (Combalbert et al., 2016; Evans & Cubellis, 2015; Forsyth et al., 2014; Hayes, Burns, Turnbull, & Shaw, 2013). Only two participants were identified to have difficulties on the cognitive impairment screen – a similar prevalence rate to that of prisoners aged over 50 years (Hayes et al., 2012). Overall, there is no evidence that older probationers presented with gross cognitive impairment (as measured on the 6CIT cognitive screen). There was a lower rate of self-reported head injuries in the probationers (22%) than has been identified in imprisoned men in England (60%, Williams et al., 2010). The reasons for this are unclear and could reflect the small sample size, different proportions of offender categories in this probation sample than in a general prison population, or cohort effects (as the sample was older).

In comparison to normative general population data, older probationers did not show impairment on measures of mental flexibility and response inhibition, despite the prevalence of conditions that might reduce performance such as past head injuries. The finding that older probationers' Verbal Fluency scores were significantly above the normative average was unexpected. One explanation for this finding is based on the limits of the normative comparison data used. The Verbal Fluency raw scores obtained in this probation population were more similar to those obtained by an older male English general population sample (Skirbekk et al., 2013) and an Australian sample of men who had committed non-sex offences (Rodriguez & Ellis, 2017). Significant correlations were not seen between executive functioning and older age, depression or substance use scores contrary to our hypothesis, and similar to another investigation (Combalbert 2016). Such findings could reflect the complex

interaction between mental health, substance use, and executive functioning. Executive dysfunction is not inevitable with the presence of a psychiatric condition or substance abuse (Testa & Pantelis, 2009). It remains unclear how the results from specific executive functioning tests relate to the complicated processes involved in offending behaviours (Massau et al., 2017). A range of other biopsychosocial factors, and how they contribute to offending, were not addressed in the current study; given the larger proportion of men convicted for sex offences the association of possible paraphilia and executive function in older probationers needs further research.

Strengths and limitations

This study contributes to the small number on older offending samples, and to our knowledge is the first providing information on the mental health and neuropsychological functioning of older probationers. Participants were predominantly White British men in their fifties, an age representation similar to the national proportion of probationers over 50 years (with 76% aged between 50-69 years [MOJ, 2017]). However, this means that our sample will be different to other older probationers from a demographic perspective. In addition, a higher proportion of participants were on probation for sex offences in this sample than older male probationers in the region (NPS cases: 78% versus 59% [J. Rakestrow-Dickens, May 2017, Personal Communication]). Therefore, the present findings may relate more to older men who commit sex offences than those who commit other crimes. Only one probationer was excluded from participation due to lack of capacity thus having little impact on the overall findings

The low inclusion rate reflects the challenges of completing research within the probation service. Recruitment rates may have increased if participants were reimbursed for their time and if invitation was not dependent on probation officers volunteering their time to assist with recruitment. The findings should be interpreted with caution as the between-group

comparisons for the Stroop test and the correlation analyses did not have sufficient power to detect an effect. Further, the absence of an individually recruited, carefully matched, comparison sample is a limitation. While all of the measures used in this study have been previously used in forensic neuropsychological and mental health research, they have not been specifically validated for probationers, and were selected to balance test reliability and validity with feasibility (considering the age group of the participants and the time available for interview).

Future research and service implications

Many of the implications of the current study are relevant to future research. We have shown that measuring older probationers' executive functioning and mental health is feasible. Future studies could address some of the limitations in the current investigation and include a control group and measuring mental health needs. Validating and adapting current measurement tools for probation populations is also required. Our study found that any psychiatric diagnosis was present in more than half of older probationers. The prevalence of mental health needs of older probationers deserves further exploration; particularly how these factors may interact with offending, risk, and recidivism (Chang, Lichenstein, Långström, Larsson, & Fazel, 2016). Despite the important role mental health may have in protecting the public and reducing reoffending (Chang, Larsson, Lichenstein, & Fazel, 2015), there is currently no national strategy for mental health for probationers in England and Wales, and their access to mental health services is reported to be difficult (Brooker & Ramsbotham, 2014). There is a need for a national study on the mental health of probationers (Brooker et al., 2012) and clear mental health pathways. The latter could involve increasing staff awareness in all parts of the criminal justice system as well as better links between probation, mental health, and drug and alcohol services (Brooker, 2015). Future studies might also consider addressing other variables to better understand risk and protective factors for

offending behaviour in older probationers. Understanding the characteristics and length of criminogenic behaviour, and qualitative accounts from older probationers on how they understand their offending and desistance would help to gain more evidence on this under-researched group.

Conclusions

This study provides preliminary information on older probationers' mental health, substance use, and neuropsychological functioning. There was a high prevalence of mental health difficulties and alcohol use among older probationers. When compared to normative data, older probationers did not present with deficits in executive functioning. The extent to which this represents unmet need requires further work.

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Table 1. Characteristics of probationers aged 50 and older who participated

Characteristic	Mean (SD)	Range	% (n)
Age	58.1 (6.9)	50 - 75	-
50-59 years	-	-	72 (23)
60-69 years	-	-	16 (5)
70+ years	-	-	13 (4)
Ethnicity			
White British	-	-	94 (30)
White Irish	-	-	3 (1)
Afro-Caribbean	-	-	3 (1)
Service			
NPS	-	-	84 (27)
CRCs	-	-	16 (5)
Offence Type			
Violent	-	-	16 (5)
Sexual	-	-	66 (21)
Weapon carrying	-	-	9 (3)
Other	-	-	9 (3)
Type of Sentence			
Community Order	-	-	31 (10)
Suspended Sentence	-	-	34 (11)
Custody	-	-	34 (11)
Length of Sentence			
Life	-	-	9 (3)
Indeterminate (IPP)	-	-	13 (4)
Over 10 years	-	-	0 (0)
5-10 years	-	-	3 (1)
Up to 5 years	-	-	59 (19)
Up to 1 year	-	-	16 (5)
Prediction of reoffending (OGRS)			
1 year	9.4% (11.8)	1 – 59%	-
2 years	15.6% (16.1)	3 – 75%	-
Years of education ¹	12.2 (1.8)	8 – 17.5	-
Estimated IQ (TOPF)	97.0 (9.7)	74 – 117	-
Self reported -			
Past head injury	-	-	22 (7)
With loss of consciousness	-	-	13 (4)
Cardiovascular or neurological conditions ²	-	-	41 (13)
Mental health conditions ³	-	-	47 (15)
Depression scores (GDS-15)	4.0 (4.2)	0 - 14	-
Depression indicated (scores >5)	-	-	31 (10)
Alcohol scores (AUDIT)	7.2 (8.5)	0 - 36	-
Hazardous drinking indicated (scores ≥8)	-	-	31 (10)
Drug use scores (DAST-10)	0.2 (0.8)	0 - 4	-
Abuse/dependence indicated (scores ≥ 3)	-	-	3 (1)
Cognitive impairment scores (6CIT)	2.8 (3.0)	0 - 12	-
Below cut-off indicating difficulties (scores ≤ 7)	-	-	6 (2)

Note: NPS = National Probation Service. CRCs = Community Rehabilitation Companies. IPP = Imprisonment for Public Protection. OGRS = Revised Offender Group Reconviction Scale. TOPF = Test of Premorbid Functioning. GDS-15 = Geriatric Depression Scale-Short Form. AUDIT= Alcohol Use Disorders Identification Test. DAST-10 = Drug Abuse Screening Test. 6CIT = Six-Item Cognitive Impairment Test. ¹97% completed at least secondary education, 91% had academic qualifications of at least a Certificate in Secondary Education, 9% were educated to a Higher National Diploma Level and 9% to university level. ²of whole sample 3% Transient ischemic attack 3%, angina, 3% cardiac event, 3% pulmonary embolism, 3% cavernous sinus thrombosis, 31% hypertension. ³of whole sample 3% emotionally unstable personality disorder, 34% depression, 6% psychosis, 16% anxiety, 3% Asperger's Disorder, 3% Post Traumatic Stress Disorder, 3% insomnia, 3% Bipolar Disorder, and 3% Erotomania.

Table 2. Mental health diagnoses of 32 older probationers

	% (<i>n</i>)	95% CI
Current disorders (past month)		
Depressive Disorder	25 (8)	10 - 40
Panic Disorder	0 (0)	-
Agoraphobia	19 (6)	5 - 32
Social Phobia	13 (4)	10 - 24
Generalised Anxiety Disorder	16 (5)	3 - 28.2
Post-Traumatic Stress Disorder	9 (3)	0 - 20
Obsessive Compulsive Disorder	3 (1)	0 - 9
Alcohol Abuse or Dependence	19 (6)	5 - 32
Substance Abuse or Dependence	3 (1)	0 - 9
Psychotic Disorder	3 (1)	0 - 9
Eating Disorder	0 (0)	-
Past Disorders (Lifetime)		
Panic Disorder	19 (6)	5 - 32
Psychotic Disorder	19 (6)	5 - 32
Anti Social Personality Disorder	6 (2)	0 - 15
Other Clinical Symptoms		
Suicidality ¹	52 (16)	34 - 69
Current symptoms only	32 (10)	5 - 32
Past attempt only	19 (6)	5 - 33
Hypomanic Episode		
Current symptoms	0 (0)	-
Past symptoms	0 (0)	-
Manic Episode	0 (0)	-
Current symptoms	0 (0)	-
Past symptoms	34 (11)	18 - 51
Caseness in any area	69 (22)	53 - 85

Note: MINI. = Mini International Neuropsychiatric Interview. ¹Suicidality for 31 participants only. Overlap between symptoms present. Confidence intervals are for the percentage prevalence estimates. One participant did not complete the suicide screen on the MINI.

Figure 1. Flowchart illustrating recruitment into the study within the five-month recruitment period.