

The Older Prisoner Health and Social Care Assessment and Plan (OHSCAP) versus Treatment as Usual: A Randomised Controlled Trial

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Research article

Keywords: Old*, prison, health, social care, assessment, care planning

Posted Date: December 9th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-75588/v1>

Abstract

Background

Older adults are the fastest-growing subgroup among prisoners in England and Wales and have more health and social care needs than their younger counterparts and those the same age living in the community. We hypothesised that the Older prisoner Health and Social Care Assessment and Plan (OHSCAP) would significantly increase the proportion of met health and social care needs three months after prison entry, compared to treatment as usual (TAU).

Methods

A parallel randomised controlled trial (RCT) was conducted at ten prisons in the North of England. Males aged 50 and over received the OHSCAP or TAU. The allocation procedure was minimisation with a random element. The OHSCAP process involved individuals having their needs assessed, care plans being created and reviewed. TAU encompassed the standard prison health assessment.

The trial was registered with the UK Clinical Research Network Portfolio (ISRCTN ID: 11841493) and was closed on 30th November 2016.

Results

Data were collected between 28th January 2014 and 06th April 2016. 249 older prisoners were assigned TAU of which 32 transferred prison; 12 were released; 2 withdrew and 1 was deemed unsafe to interview. 253 prisoners were assigned the OHSCAP of which 33 transferred prison; 11 were released; 6 withdrew and 1 was deemed unsafe to interview. Consequently, data from 202 participants were analysed in each of the two groups. There were no significant differences in the number of unmet needs as measured by the Camberwell Assessment of Needs – Forensic Short Version (CANFOR-S). The mean number of unmet needs for the OHSCAP group at follow-up was 2.03 (SD=2.07) and 2.06 (SD= 2.11) for the TAU group (RR = 0.088; 95% CI -0.276 to 0.449, p = 0.621).

No adverse events were reported.

Conclusion

Those received the OHSCAP did not experience an improvement to the meeting of the needs in comparison to the TAU group. This was largely due to the OHSCAP not being implemented as planned due to a national prison crisis.

The OHSCAP was fundamentally not implemented as planned, partly due to the national prison staffing crisis that ensued during the study period. Therefore, those receiving OHSCAP did not experience improved outcomes compared to those who received TAU.

Trial Registration

Background

The number of incarcerated older adults across developed countries has increased markedly in recent times; for example, seventeen percent of the prison population in England and Wales are now aged 50 and over (13,890). This includes 3970 individuals aged 60 plus; triple the number 15 years age (Ministry of Justice, 2019). Older adults in prison have multi-faceted health problems. They have more complex health needs than their peers in the community and younger individuals in prison (Fazel, Hope, O'Donnell, et al., 2001). It is estimated that between 85% and 93% have some form of physical illness (Fazel, Hope, O'Donnell, et al., 2001; Hayes et al., 2012), including most commonly, respiratory (8–78%); musculoskeletal (23–57%) and cardiovascular diseases (18–49%) (Fazel, Hope, O'Donnell, et al., 2001; Hayes et al., 2012; Kingston et al., 2011; Senior et al., 2013). The most frequent mental illnesses include personality disorder (20–30%); depressive disorder (12–14%) and substance misuse (5%) (Fazel, Hope, O'Donnell, et al., 2001; Hayes et al., 2013; Kingston et al., 2011). Older prisoners often have complex social care needs and prisons are ill-equipped to manage these (Her Majesty's Inspectorate of Prisons and Quality Care Commission, 2018). Hayes et al. (2012) found that 11% of their sample of older prisoners had personal care needs and over a third of these were unmet. Older adults residing in prison experience intense anxieties about release and they typically perceive their release planning to be non-existent (Forsyth et al., 2015). There is no national strategy for the care of incarcerated older adults in England and Wales, regardless of numerous calls for one to be produced (Age UK, 2011; Crawley, 2005; Hayes et al., 2013; Prisons & Probation Ombudsman, 2017). Service provision is consequently unplanned and disorganised with targets outlined in the National Standards Framework for older people remaining principally unmet in prisons (Her Majesty's Chief Inspector of Prisons, 2008). Department of Health guidance recommends that older adults' health and social care needs should be assessed, using a specialised assessment on entry into prison. However, only 19% of prisons in England and Wales have established such an assessment and these assessments have not been officially appraised (Senior et al., 2013).. It is imperative that the health and social care needs of older prisoners are satisfactorily met. Existing service provision in England and Wales is unacceptable and even unlawful due to its failure to abide by the Disability Discrimination Act, Equality Act and article 8 of the European Convention on Human Rights (Hayes et al., 2012). In addition, most prisoners will be released in their lifetimes. Prison is a rare opportunity to connect individuals with services and meet needs. Adequately meeting older prisoners' needs could lead to preventive strategies that reduce costs when prisoners are released and may also reduce the likelihood of reoffending after release. Thus, the failure to meet older adults' health and social care needs whilst incarcerated has a long-term damaging impact to individuals and society. There have been no preceding studies internationally, investigating the use of older adults' health and social care assessments in prison. The Older prisoner Health and Social Care Assessment and Plan (OHSCAP) was developed via 'action learning' as part of an earlier study (Senior et al., 2013). It is a structured approach to identify and address older prisoners' health and social care needs. Results from the pilot research suggested that the OHSCAP facilitated prompt solutions for day-to-day

problems; timely referral to health and support organisations and enhanced multi-agency cooperation (Senior et al., 2013). The aim of the current study was to evaluate the effectiveness and acceptability of the OHSCAP in comparison to Treatment as Usual (TAU). The specific objectives of the study were to evaluate the efficacy of OHSCAP in improving: a) the meeting of older male prisoners' health and social care needs (primary outcome); b) health-related quality of life; c) depressive symptoms; and d) functional health and wellbeing and activities of daily living.

Methods

Inclusion/exclusion criteria

Participants were male, aged 50 or over and with a known release date (convicted) or likely release date (unconvicted) of at least three months after their prison entry date. The following exclusion criteria applied: i) those who did not have the capacity to consent; ii) those deemed by prison or healthcare staff as being unsafe to interview alone due to their current risk assessment; and iii) those previously included in the study. Written informed consent was obtained from all participants.

Study design

The study involved a parallel two group RCT with 1:1 individual participant allocation to either the OHSCAP plus TAU (intervention group) or TAU alone (control group) (Forsyth et al., 2017). The study recruited male prisoners aged 50 and over from ten establishments in England including open, training, and high secure prisons to enhance generalisability. Randomisation was conducted by the Manchester Academic Health Science Centre Clinical Trials Unit (MAHSC CTU). The MAHSC CTU ran a telephone-based central randomisation service for the trial using minimisation with a random element using imbalance scores over the margins of two factors: Institution and baseline number of unmet needs (0, 1, 2, 3, 4+). This random allocation sequence was generated by David Ryder (Statistician, CTU) (Forsyth et al., 2017).

Three alterations were made to the protocol 1) *Increase in number of sites*: It became evident that we were required to add further establishments to meet the follow-up target. We ensured we involved a variety of prison types. The number of prisons subsequently increased from four to ten (Forsyth et al., 2017). 2) *Increase in baseline target*. It became evident that our attrition rate was much higher than the expected 10%, (at almost 20%). This was largely as a result of retention issues in the local (remand) prison sites, where it was more difficult than expected to identify individuals who would remain in prison for the three month follow-up period. Thus, we increased our recruitment period and augmented our baseline recruitment target to a maximum of 502 participants at baseline, from the initial target of 462 (Forsyth et al., 2017). 3) *Changes to assessment tools*: Several changes were made to the assessment's tools in advance of data collection. The SF-36 (Ware et al., 1993) was substituted for y the Bristol Activities of Daily Living (BADL) (Bucks et al., 1996) because it was deemed more relevant for use in prison. The Client Service Receipt Inventory (Chishol et al., 2000) was replaced by the Secure Facilities Service User Schedule (Barrett & Byford, 2007) for the same reason. We also added the subsequent tools in order to describe the sample: OPCRIT (Azevedo et al., 1999), PriSnQuest (Shaw et al., 2003) and the Burvil Grid (Burvill et al., 1990).

The OHSCAP intervention and its delivery

The OHSCAP was developed and implemented as part of a previous study funded by the National Institute for Health Research (NIHR) Service Delivery and Organisation (SDO) programme (Senior et al., 2013). An Action Learning Group (including prisoners, NHS staff and prison staff) at one establishment in the North of England created the OHSCAP (Senior et al., 2013). The OHSCAP is a structured approach for identifying and managing the health and social care needs of older adults residing in prison (Senior et al., 2013). The previous study suggested that the OHSCAP was acceptable to stakeholders, could be incorporated into current prison/healthcare processes, aided effective multi-agency working; created a chance for older adults to broach their concerns; and could be successfully facilitated by a prison officer (Senior et al., 2013). The OHSCAP is paper based with data collected and uploaded onto existing prison, health and offender manager computer systems. It involves an assessment and a care plan as well as reviews of these two components, as follows:

Assessment.

incorporates a series of open questions to facilitate conversation and encompasses three sections, namely: (i) social care; (ii) health and well-being; (iii) release planning. The social assessment includes open questions around relationships, activities, and mobility. The well-being section explores emotional health, physical health, medications, and treatment. The final section comprises open questions around release planning.

Care plan.

consists of a matrix with the following five columns: 1) Issue raised from assessment; 2) Aim of the proposed action; 3) Action (by whom and when); 4) Date to be reviewed and rationale; 5) Status of action. *Review section:* includes space for a date and details of 1) Progress since last review; 2) Action planned; and 3) Next review with rationale (Senior et al., 2013; Forsyth et al., 2017).

The assessment should be carried out one to two weeks after prison entry. The facilitator completed the assessment one-to-one with each older prisoner. The care plan was devised in conjunction with the older prisoner and they were provided with a copy of their OHSCAP. In addition, a summary of the OHSCAP findings was inputted on to the prison computerised information system (C-NOMIS) and a copy of the OHSCAP was scanned onto the prison computerised clinical records (SystemOne) and probation computer records (Offender Assessment System - OASys).

Originally, the OHSCAP was designed to be facilitated by the Older Prisoner Leads, who are prison officers. However, in 6 of the 10 prisons healthcare workers delivered the OHSCAP, as this was considered by senior managers to be more achievable within their prison. This was fundamentally a result of the benchmarking process taking place at the time, which created a lessening in prison officers and the demise of some roles,

including the Disability Liaison Officer (DLO), who had a key role in supporting older prisoners (Forsyth et al., 2017).

All of the OHSCAP facilitators were trained to deliver the OHSCAP, in line with the OHSCAP manual (available here: <http://www.ohrn.nhs.uk/OHRNResearch/OHSCAP/Manual.pdf>). Additional training sessions held at The University of Manchester, which were attended by facilitators from all prison sites. Continuing assistance was also offered by one of the investigators (EW) (Forsyth et al., 2017).

Treatment as usual involved the standard non age-specific health assessment completed at prison entry (Grubin et al., 2002). Other support incorporated within treatment as usual varied between prisons but involved older prisoner social groups, peer carers and 'healthy men' checks. It has been identified that identification of health and social needs and care planning is frequently *ad hoc* and considered deficient (Senior et al., 2013).

Data were collected at baseline and three-month follow-up. The following assessments were conducted at baseline: Bristol Activities of Daily Living Scale (Bucks et al., 1996) [primary outcome measure]; Geriatric Depression Scale – Short Form (GDS-15) (Sheikh & Yesavage, 1986); EQ-5D-5L (Herdman et al., 2011); and the bespoke OHSCAP research tool designed by the research team, to measure the extent to which specific health and social care needs had been addressed. PriSnQuest (Shaw et al., 2003) and the Burvil Grid (Burvill et al., 1990) were also completed at baseline to describe the sample.

The study adheres to CONSORT guidelines.

Statistical Analysis

Analysis was conducted in SPSS version 20, blind to allocation status. From previous our work, the mean number of unmet needs of 100 older prisoners was estimated to be 2.71 (sd = 2.65, range 0–25, median = 2) (Senior et al., 2013). For 30% power, 196 participants were required in each trial arm at three-month follow-up. Allowing for 15% attrition, we aimed to recruit 504 at baseline. The intention to treat (ITT) principle was adopted for analysis. The primary hypothesis for the change in the mean number of unmet needs as measured by the CANFOR-S was analysed using regression models. We adjusted for baseline characteristics used in the minimisation process i.e. site and number of unmet needs at baseline. We used bootstrapping to account for the skewness in the outcome of the data. Furthermore, we fitted a Poisson model to analyse the data as counts with a log-linear negative binomial regression model also fitted to assess over-dispersion (Forsyth et al., 2017).

Results

Participants

Between January 1, 2014 and April 6th 2016, 502 participants were enrolled from 10 prisons, with 249 allocated to receive TAU and 253 allocated to receive the OHSCAP (Fig. 1) (Forsyth et al., 2017). The trial ceased when data targets were reached. Baseline characteristics were well balanced across treatment

groups (Table 1), including their index offence, prisoner status and whether or not they had been in prison before. The majority were of White British ethnicity and were convicted (sentenced) prisoners. They were most commonly convicted of sexual offences, followed by drug and violent offences. The majority scored less than 3 on PriSnQuest (80%) indicating they did not require any further mental health assessment at the time the assessment was completed. The most common mental illness was generalised anxiety disorder (6%, identified via OPCRIT). The mean number of body systems acutely affected according to the Burvil Grid was 0.2 and chronically affected was 2.1 (Forsyth et al., 2017).

Table 1
Baseline characteristics of the intention-to-treat population

	TAU (n = 249)	OHSCAP (n = 248)
Age	59 (7.8)	57 (7.0)
Ethnic origin	215 (86%)	231 (93%)
White	14 (6%)	2 (1%)
Black	10 (4%)	6 (2%)
Asian	10 (4%)	9 (4%)
other		
Index offence	33 (13%)	29 (12%)
Violence	98 (39%)	109 (44%)
Sexual offence	52 (21%)	36 (14%)
Drug offences		
Prisoner status	41 (17%)	37 (15%)
Remand	13 (5%)	8 (3%)
Convicted, unsentenced	195 (78%)	203 (82%)
Convicted, sentenced		
Been in prison before	132 (53%)	123 (49%)
Yes		
OpCriT Diagnosis*	8 (4%)	5 (2%)
Psychosis/Schizophrenia	5 (2%)	8 (4%)
Depression	17 (8%)	16 (8%)
Anxiety disorder	1 (0%)	1 (0%)
Personality Disorder	25 (12%)	9 (4%)
Harmful use of drugs	11 (5%)	15 (7%)
Harmful use of alcohol	5 (2%)	3 (1%)
Other	4.3 (3.3)	3.5 (3.2)
Burvil Grid	3.7 (3.4)	2.9 (2.97)
Chronic Severity		
Chronic Disability		

TAU (n = 249)	OHSCAP (n = 248)
*Do not add up to 100 because participants may have more than one diagnosis	

There were no significant differences between the two groups at three months follow-up for the primary outcome measure of the total number of unmet needs or any of the individual domains of the CANFOR-S (Table 2). When the log linear negative binominal regression model was run the results were unchanged from the Poisson model, indicating that the Poisson model was not over-dispersed (Forsyth et al., 2017).

Thirty one percent scored between 6 and 15 on the GDS indicating depressive symptoms. There were no statistically significant differences between groups (Table 2).

The OHSCAP bespoke Likert scale incorporated the following options: 'not at all'; 'very little'; 'somewhat' and 'to a great extent'. For clarity, the mean responses are included in Table 2. Issues that were more likely to be met were access to a GP on release and; collecting meals and showering whilst in prison (mean = 2.95, 2.87 and 2.84 respectively). Problems that were less likely to be met included information about release processes, sleep and boredom (with means of 1.98, 2.06 and 2.06, respectively). There was a statistically significant difference between groups for prisons' ability to hear instructions from prison officers (0.173, p = 0.014, 95% CI - 0.30 to 0.311). There were no other statistically significant differences between groups (Forsyth et al., 2017).

Table 2
Primary and secondary outcome measure results

	TAU (n = 202)	OHSCAP (n = 202)	Relative risk or mean difference (95% CI)	95% CI
Primary Outcome				
Total no. unmet need	2.06 (2.114)	2.03 (2.066)	0.088 * -0.078 **	-0.276 to 0.449 -2.16 to 0.061
OHSCAP bespoke total	60.15(7.624)	61.83(6.546)	-0.166	-3.996 to 4.231
GDS scale	135 (67%)	142 (70%)	1.033	0.617 to 1.732
0–5 normal	67 (31%)	59 (29%)		
6–15 depressive symp.				
*Linear regression with bootstrapping **Poisson model				

Discussion

The hypothesis was that the OHSCAP would significantly increase the proportion of met health and social care needs three months after prison entry, compared to TAU controls (Forsyth et al., 2017). However, there was no difference in the number of unmet health and social care needs between the TAU and OHSCAP group at the 3 months follow up. Additionally, no differences were found between the groups when depression or activities of daily living needs were examined. Specific health and social care need domains were examined separately. There were no differences between groups for how well specific health and social care needs were met, except for hearing instructions. Prisoners who received the OHSCAP were more likely to have their needs met for this domain, than those in the TAU group (Forsyth et al., 2017).

The main explanation for the lack of difference between the TAU and OHSCAP groups is that the OHSCAP was not implemented as intended (Forsyth et al., 2013; Forsyth et al., 2017). An audit of all accessible OHSCAPs was conducted (68%) to identify both the fidelity of implementation and the quality of the care planning. The OHSCAP manual stipulated that the assessments should be completed 7 to 14 days after prison entry. In spite of this, the audit found that the OHSCAPs were completed on average 20 days after arrival in prison (range 4 to 63). Equally, care plans should have been produced after each assessment. Nonetheless, care plans were documented for less than half of the OHSCAPs reviewed (43%). Moreover, no action was reportedly taken in 43% of cases where problems were identified (Forsyth et al., 2013; 2017).

The nested qualitative study generated a valuable understanding of why the OHSCAPs had not been adequately executed (Forsyth et al., 2017). Semi-structured interviews with 14 prisoners and 11 staff members detected fears about healthcare and prison 'silos' resulting in a lack of meaningful multi-agency and partnership working (Forsyth et al., 2017). Prisoners additionally stated that they considered it objectionable for prison officers to be facilitating the OHSCAP. Most strikingly, staff stipulated that they were working within a 'broken prison system', because of the recent considerable staff reductions. Staff stipulated that meeting basic needs such as enabling all prisoners to have showers and remain safe was more challenging since the staff reduction, thus facilitating the OHSCAPs was a low priority (Forsyth et al., 2017).

The findings of the nested qualitative study allude to the fact that, at the time of data collection, prisons were in crisis (Forsyth, 2017). The current study took place at a time when the government introduced policies with the intention of reducing staffing levels across the National Offender Management Service as a whole (House of Commons Justice Committee, 2015). Benchmarking encompassed an attempt to reduce costs across the prison system of England and Wales by reducing the number of prison officers (House of Commons Justice Committee, 2015). These reductions were enabled through changes to the prison regimes. Between March 2010 and September 2016, grade 3 to 5 operational prison officer numbers fell by 26.3% in public sector prisons, excluding structural changes (prison closures, movement between

public/private operation) (Ministry of Justice, 2016). This affected the ability of staff to implement the OHSCAP as intended (Forsyth et al., 2017).

The damaging impacts of these staff shortages were widely described by participants, both professionals and residents, during the qualitative interviews (Forsyth et al., 2017). After data collection for this study was completed, the government White Paper 'Prison Safety and Reform' recognised grave problems with the prison system and the need for change (Ministry of Justice, 2016). The paper recommended several changes to the prison system, including increasing staff-to-prisoner ratios via the employment of an extra 2,500 prison officers. By December 2017, prison officer numbers were at the highest number they had been since September 2013, increasing by 161 percent between December 2016 and December 2017 (Ministry of Justice, 2019). Importantly, the newly recruited prison officers lacked the experience that previous staff held (Bullman, 2019).

Alternatives to increasing prison officer numbers to improve standards of care are also required. To better meet equivalency with the community and to enhance the quantity, scope and targeting of services additional research should explore and identify the role other prisoners and third sector organisations (such as older adult specialist services) may have in identifying and suitably meeting older prisoners' health and social care needs (Forsyth et al., 2017). There have been recent efforts towards using prisoner peers to meet older prisoner health and social care needs, but the appropriateness and effectiveness of such interventions is largely unknown (Tucker et al., 2018).

The introduction of the Care Act (2014) also transpired during the data collection phase of this study (Forsyth et al., 2017). Essentially, this meant that local authorities became responsible for the provision of social care for prisoners (Tucker et al., 2018). The OHSCAP was designed to complement the Care Act by providing a system for meeting the social care needs of older prisoners who did not meet the high threshold for social care packages set by local authorities (Forsyth et al., 2017). Early research suggests that many different models of social care have been adopted by local authorities with varying degrees of success (Tucker et al., 2018). This marked change in social care provision may have further impeded the successful implementation of the OHSCAP at a time when there was confusion over the provision of social care in prisons and significant change (Forsyth et al., 2017)

Although the OHSCAP was not facilitated as planned, it is important to discuss the impact of potential limitations of the research. The possibility of contamination between the TAU and intervention arm was cautiously ruminated. An individual-level randomised design was adopted, and accordingly individuals within the same prison were receiving both TAU and OHSCAP, because it was predicted that there would be minimal contamination between the two groups. This was considered to be the situation because older prisoners were not systematically identified on entry into prison within the TAU arm and therefore the Older Prisoner Leads did not usually come into contact with these older prisoners (Forsyth et al., 2017; Senior et al., 2013).

The assessment tools used were the most suitable ones that were obtainable; however, they had some limitations (Forsyth et al., 2017). Several participants stipulated that many of the discrete domain items in

the CANFOR-S were not relevant to their current situation in prison, or at all, given their age, (for example asking about needs in relation to childcare responsibilities). Furthermore,, the CANFOR-S considered needs to either be met or unmet, but it is unlikely that some health and social care needs are ever fully met as they are unending and variable in their nature and / or severity. Findings from our previous research suggest that older adults in prison are less likely to raise concerns than their younger counterparts (Senior et al., 2013); consequently participants in this research may not have always stipulated if they were experiencing unmet needs. In spite of the limitations of the CANFOR-S this tool was considered by the authors to be the best one available for measuring health and social care needs within the prison setting and has been successfully used with this population in previous studies (Hayes et al., 2012; Senior et al., 2013). It was decided that a three-month follow-up period should allow ample time for initial needs to be met. The CANFOR measures whether or not prisoners are receiving some beneficial assistance. The research team considered three months to be sufficient time for the prisoners to begin to get suitable assistance, and we also wished to minimise attrition (Forsyth et al., 2017).

Additionally, some limitations of the tools used to measure the secondary outcomes were present. The GDS-15 was not initially designed for use in prison. However, the scale has been used with older prisoners in a previous study (Murdoch et al., 2008). In that research, one question was adapted from 'do you prefer to stay at home rather than go out and do new things?' to 'do you go 'on association'?' (Murdoch et al., 2008). 'On association' is the term used describe those residing in prison leaving their cell and socialising with other residents. We adopted the same approach. Additionally, very few activities of daily living needs were identified using the BADL (Table 3, appendix 1). This tool has been used in previous older prisoner research (Hayes et al., 2012). However, it is designed for use with dementia patients and is perhaps not sensitive enough to recognise activities of daily living needs among either older adults not experiencing dementia, and among those living in a limiting institutional setting (Forsyth et al., 2017).

We acknowledged at the planning stages that participants would inescapably became aware of which group they have been allocated to when they received the intervention. Additionally, the researchers knew which group some of the participants belonged to because 14 of the participants in the intervention group participated in qualitative semi-structured interviews (Forsyth et al., 2017).

The CANFOR-S was adopted because, it was the most suitable available tool for assessing unmet health and social care needs within the prison population (Forsyth et al, 2017; Senior et al., 2013). The research team were, however, aware that there were certain domains of the CANFOR-S that the OHSCAP specifically aimed to address and some domains of the CANFOR-S that the OHSCAP did not aim to address (Forsyth et al., 2017). The research team therefore felt it would be useful to analyse the data separately for the specific domains of the CANFOR-S that were considered most relevant to the OHSCAP. The aim of this analysis was to gain a more detailed understanding of the specific domains of the CANFOR-S that the OHSCAP seemed to assist more with and which domains the OHSCAP was less able to address (Forsyth et al., 2017).

Conclusion

No significant differences, in terms of met health and social care needs, were observed between the OHSCAP and TAU groups. However, the OHSCAP was not delivered as intended, largely due to prisons experiencing a staffing crisis (Forsyth et al., 2017). Since the study was conducted, the number of prison offers has been increased, but many experienced officers have been lost to the service. This study has highlighted the challenge of conducting RCTs in a significantly under-resourced and deteriorating prison environment (Forsyth et al., 2017). Prisons require stable experienced staffing for health and social care interventions to be successful. Future interventions and research studies should take measures to minimise the impact of policy and staffing changes, where possible. This should incorporate the use of peer carers, the third sector and thorough and inclusive implementation strategies.

Declarations

Ethics approval and consent to participate

Approval to conduct the study was granted by the Research Ethics Committee (REC) for Wales in May 2013 (reference number 13/WA/0108). National Offender Management Service (NOMS) research approval was provided in July 2013 (reference number 2013-115).

Written informed consent was obtained for all participants.

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

The Health Services and Delivery Research Programme of the National Institute for Health Research funded the research.

Authors' contributions

Ms Katrina Forsyth was involved in the conception, design, conducted the analysis, interpreted data, drafted and revised the paper

Professor Roger T. Webb was involved in the conception, design, analysis, interpretation of data and revising the manuscript.

Ms Laura-Archer Power was involved in the design of the study.

Prof Richard Emsley was involved in the conception, design, analysis and interpretation of data.

Dr Jane Senior was involved in the conception and design of the study.

Prof Alistair Burns was involved in the conception and design of the study.

Prof David Challis was involved in the conception and design of the study.

Dr Adrian Hayes was involved in the conception and design of the study.

Dr Rachel Meacock was involved in the design of the study.

Dr Elizabeth Walsh was involved in the design of the study.

Dr Stuart Ware was involved in the design of the study,

Professor Jenny Shaw was involved in the conception, design, analysis, interpretation of data and revised drafts of the paper.

Acknowledgements

Ms Caroline Stevenson and Anjya Francis, University of Manchester assisted in data collection.

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Figures

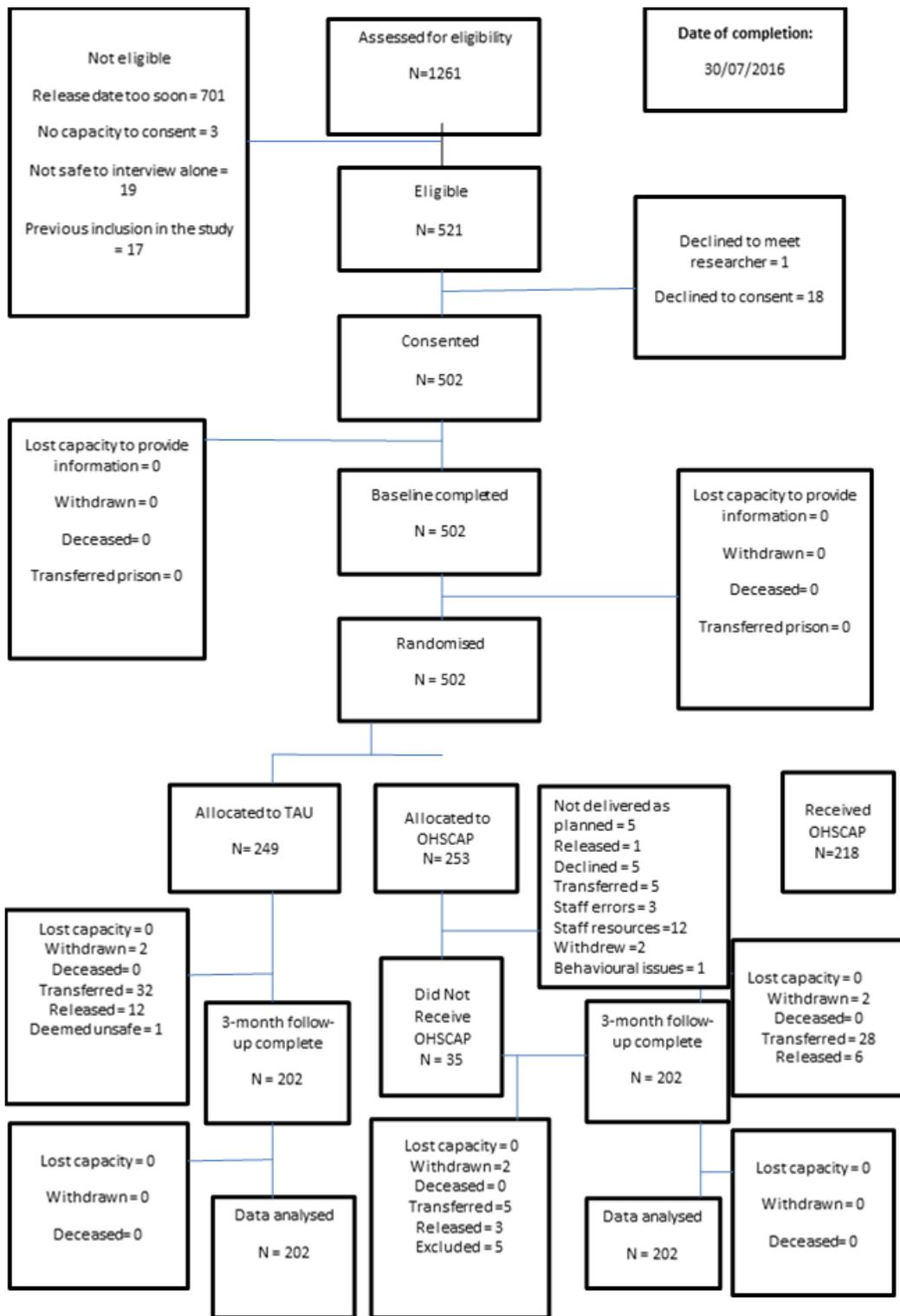


Figure 1

CONSORT diagram

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