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Evaluation of the use of pharmacological treatment with prisoners experiencing high levels of hypersexual disorder

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Abstract

This paper presents an evaluation of the impact of pharmacological treatment in reducing hypersexual disorder in adult males who have been incarcerated following conviction for a sexual offence. The evaluation compares two types of pharmacological treatment, one of which is part of the current NICE guidance for treatment of hypersexuality (Antiandrogens), whilst the other type (SSRIs) is off-label use in the UK for hypersexuality. The participant pool comprised 127 adult male prisoners serving sentences for sexual offences in a UK prison. Participants had been voluntarily referred for pharmacological treatment to manage hypersexual disorder. The results demonstrated a significant reduction of hypersexual disorder pre- and post-medication and contribute to the evidence base for the use of pharmacological treatment with individuals for whom hypersexual disorder may be a salient factor in their offending. Limitations of the current research are discussed.

Keywords: sexual offender treatment; anti-libidinal; SSRIs; anti-androgens; evaluation; hypersexuality

Introduction

In 2007, Her Majesty's Prison and Probation Service (HMPPS) facilitated a pilot trial in a UK prison for people convicted of sexual offences (PCSOs), for the use of pharmacological treatment, or, as was consequently termed, medication to manage sexual arousal (MMSA). Guay (2009) and Grubin (2008a) had previously postulated that there was a promising role for medication with individuals convicted of sexual offences, with medication having been shown to reduce sexual urges and hypersexual behaviours in those with paraphilic and other sexual disorders. However, the evidence base has been lacking: the second Cochrane review, (Khan et al., 2015) to examine the effectiveness of pharmacological interventions for people convicted of sexual offences and those at risk of sexual offending, resulted in a final dataset of only seven studies (all published more than 20 years ago and mainly US-based and/or small studies), with no large scale or controlled evaluation studies. Their review, together with studies such as that by Turner, Basdekis-Jozsa and Briken (2012) of PCSOs in German forensic-psychiatric institutions, together with a preliminary evaluation by Winder et al. (2014) in a UK prison, indicated that pharmacological treatment is effective in helping prisoners to control their sexual urges, preoccupation and drive for sexual outlets. Further, it has been suggested that medication can reduce the risk of reoffending, especially when combined with psychological treatment (Kaplan & Krueger, 2010).

The importance of evaluating the effectiveness of pharmacological treatment to manage hypersexual disorder[1] is centred on the strong association between sexual preoccupation and sexual recidivism in sex offending populations (Hanson & Harris, 2000; Beech, Fisher, & Ward, 2005). One dynamic measure of risk of recidivism most commonly used in the UK is the Structured Assessment of Risk and Need (SARN; Thornton, 2002).

[1] Hypersexual disorder is being used throughout this paper to describe people who are experiencing high levels of sexual preoccupation, hypersexuality and/or sexual compulsivity (see Kafka, 2010 and 2014; Winder et al., 2014, for more information on terminology).

Within this risk assessment, sexual preoccupation is termed ‘obsession with sex’, and this definition is used here as it incorporates Kafka and Prentky’s (1992) definition (which uses total sexual outlets as a measurement of sexual preoccupation) as well as using cognitive indicators. This captures all elements of sexual preoccupation, which is a limitation of the behavioural and cognitive only definitions. An obsession with sex has been seen to be the most strongly present ‘risk of reoffending’ factor in a study of over 1000 adult men serving prison sentences for a sexual offence (see Hocken, 2014). Yet, it is the only risk factor that is not addressed by current UK sex offending treatment programmes. Whilst the National Offender Management Service’s Healthy Sexual Functioning Programme (HSP) does address deviant arousal and promote healthy sexual functioning (HMPS, 2016), it does not actively help men struggling with sexual preoccupation, hypersexual behaviour or sexual compulsivity.

The utility of pharmacological treatment, administered in the UK voluntarily to prisoners, has been declared a useful adjunct to traditional psychological treatment (Home Office, 2007; Guay, 2009; Turner, Basdekis-Jozsa & Briken, 2012). Qualitative research with sexually preoccupied prisoners by Lievesley, Elliott, Winder, Norman and Kaul (2014) has also helped to explain one of the mechanisms for this, with prisoner participants reporting more ‘headspace’ as a result of taking MMSA, helping them to focus better on the cognitive-behavioural treatment programmes that they were undertaking. Having ‘headspace’ was particularly important, given that as part of the programmes prisoners are asked to describe their sexual offences in detail; sexually preoccupied individuals have reported that this can exacerbate their arousal, causing shame and embarrassment in group treatment (K. Hocken, personal communication, February 24, 2017). The reasons why individuals seek MMSA (along with concerns they may have), are described by Lievesley et al. (2014) in their qualitative exploration of prisoners’ experiences of SSRIs. Service users reported a reduction

in sexual preoccupation, sexual arousal and improvements in their abilities to manage negative emotions as they spoke about having "a clearer way of thinking: from sexually preoccupied to 'human'" (Lievesley et al., 2014, p. 7). Service users typically recognised that their hypersexuality and sexual preoccupation were partly responsible for them committing a sexual offence (and thus being in prison), but they also reported high levels of distress, anxiety and/or depression, which they associated with their hypersexuality (and its consequences).

Three types of medication are available within the UK prison estate: Selective Serotonin Reuptake Inhibitors (SSRIs; Fluoxetine/Paroxetine), anti-androgens (AAs; Cyproterone Acetate; CPA) and gonadotropin-releasing hormone agonists (GnRH; Triptorelin). SSRIs increase levels of Serotonin, thereby inhibiting physiological and psychological arousal, erection and orgasm; they are reported to be especially effective in patients with obsessive-compulsive sexual deviance (Guay, 2009; Briken, Hill & Berner, 2003; Bradford, 2001). Thibaut et al. (2010) argue, and the authors agree, that there is sufficient evidence for their successful use as an anti-libidinal medication, despite this not being a targeted use as set out by NICE guidelines. Moreover, there is evidence that SSRIs affect psychological factors that relate to sexual offending, namely (dis)inhibition of sexual behaviour, compulsive behaviours and compulsive thinking (Beech & Mitchell, 2005; Jordan, Fromberger, Stolpmann & Müller, 2011).

On the other hand, AAs are recognised for their direct effect in reducing testosterone levels. Previous research has reported significant declines in hypersexuality, sexual preoccupation and/or sexual compulsivity in individuals treated with AAs (Bradford & Pawlak, 1993; Thibaut et al., 2010; Winder et al, 2014). Similarly, gonadotropin-releasing hormone agonists are used to constantly stimulate the pituitary gland, initially increasing but

ultimately decreasing pituitary secretion of luteinising hormone (LH) and thus diminishing testosterone release.

Research Aims

This research examined the hypothesis that there would be significant reductions in levels of hypersexual disorder (including sexual compulsivity and sexual preoccupation) for referred prisoners, pre- and post-medication. A further hypothesis postulated that reductions in hypersexual disorder pre and post medication would be demonstrated for both types of medication, that is, with (i) SSRIs and (ii) AAs.

Method

Participants

Participants comprised 127 adult male individuals housed in a Category C UK prison for people with sexual convictions who had been referred for medication between 2010[2] and 2016. The HMPPS criteria for referral comprise evidence of one or more of the following:

> 'a. hyper-arousal (e.g., frequent sexual rumination, sexual preoccupation, difficulties in controlling sexual arousal, high levels of sexual behaviour),
>
> b. intrusive sexual fantasies or urges,
>
> c. subjective reports of experiencing urges that are difficult to control,
>
> d. sexual sadism or other dangerous paraphilias such as necrophilia. Highly repetitive paraphilic offending such as voyeurism or exhibitionism' (HMPS, 2008, pg. 3).

[2] Three individuals had been referred in 2009, but this was prior to the evaluation research; the majority of referrals were between 2010 and 2015

Medication

Three types of medication were available: SSRI (Fluoxetine), AAs (Cyproterone Acetate, CPA) and gonadotropin-releasing hormone agonist (GnRH agonist; Triptorelin). Individuals typically commenced medication with a daily tablet of 20mg Fluoxetine, increasing to 40/60mg as per the clinical judgement of the consulting psychiatrist. For more severe cases, or where the SSRIs did not appear to be working sufficiently in terms of reducing levels of hypersexual disorder (either in the view of the psychiatrist or the view of the patient and psychiatrist), AAs were prescribed. The typical starting dosage for AAs was 50mg, taken daily by tablet, with dosage increased to 100mg where the psychiatrist deemed this necessary and/or helpful. Dosages are in line with current guidelines for the treatment of paraphilic disorder (Thibaut et al., 2010) and the clinical judgment of the consulting psychiatrist. GnRH agonists were available, but were only used in two cases (due to the high cost of the medication) where release into the community was imminent and both prisoner and psychiatrist were concerned about an imminent risk of reoffending.

Of the 127 men referred for treatment between 2010 (when medication was first offered to prisoners) and 2016, 75 received SSRIs (72: Fluoxetine; 3: Paroxetine), 16 received AAs (Cyproterone acetate, CPA), seven received a combination of SSRIs and AAs, two received a GnRH agonist (Triptorelin), 20 did not receive any medication (refused/not suitable) and seven prisoners were ‘on hold’ for the medication or they were undergoing assessment by the resident consultant psychiatrist for the medication. Therefore a total of 100 out of 127 (78.74%) referred prisoners received medication.

Measures

Data collated included: referral information, demographic and offending data, sentence information, and type and dosage of medication. IQ levels were sought from pre-existing Wechsler Adult Intelligence Scale (WAIS-IV; Wechsler, 2008) and Wechsler Abbreviated Scale of Intelligence (WASI-II; Wechsler, 2011) tests, carried out by trained psychologists. Static and dynamic risk data were also captured from pre-existing file information: static risk was recorded from Risk Matrix 2000 (RM2000; Thornton et al., 2003) and dynamic risk was reported from the Structured Assessment of Risk and Need (SARN; Thornton, 2002), and were carried out by trained psychologists. Data relating to several clinical measures (sexual preoccupation and hypersexual behaviour, described below) recorded by the psychiatrist were collated, with the additional psychometric measure; the Sexual Compulsivity scale (SCs; Kalichman et al., 1994a), collected independently by the research team from 2011 onwards.

RM2000

The RM2000 is a static actuarial risk tool used to assess the risk of recidivism for adult males with sexual convictions (Thornton, 2010; Thornton et al., 2003) and has shown good predictive accuracy for sexual recidivism (d = .74; Helmus, Babchisin & Hanson, 2013). The RM2000 generates a sexual risk and a violent risk score (scored as 1 [low], 2 [medium], 3 [high] or 4 [very high]). Trained professionals within the prison use the tool as part of the treatment interventions; for this research those scores were obtained for participants from their psychology files.

SARN

The SARN is a dynamic risk tool used to identify dynamic risk factors for sexual offending and to understand individuals' treatment needs (Thornton, 2002; Webster et al., 2006). The

tool comprises 16 dynamic risk factors categorised into four domains; Sexual Interests, Distorted Attitudes, Socio-Affective Functioning and Self-Management. Each risk factor assesses risk within the individual's offence chain, and in life generally (scored as 0 [not present], 1 [present] and 2 [strongly characteristic]). As with the RM2000, the SARN is carried out by trained psychologists within the prison, as part of the treatment interventions, and the scores were obtained from participants' psychology files. The SARN has been examined for its use with men with intellectual disability (ID) who commit sexual offences, and findings suggest the factors within it are applicable to understanding risk in this population (see Hocken, 2014). The SARN has not demonstrated predictive validity for risk in this population, however it is being used here to understand level of treatment need and not necessarily as a risk assessment tool.

Sexual Compulsivity Scale (SC)

The sexual compulsivity scale (SCs) was developed by Kalichman et al. (1994a) to assess insistent, intrusive, and uncontrolled sexual thoughts and behaviour. It is a 10-item scale with participants rating a series of statements using a four-point response scale ranging from 1 (not like me at all) to 4 (very much like me). Indicative items include: 'my sexual thoughts and behaviours are causing problems in my life' and 'my desires to have sex have disrupted my daily life'. Cronbach's alpha for the scale was 0.89 with a male sample, 0.92 with a female sample (Kalichman & Rompa, 2001), 0.89 with an HIV+ sample (Kalichman et al., 1994b) and 0.89 with an adult male prisoner sample (Winder et al., 2014). Cronbach's alpha for the scale with the current sample was 0.83. This was also calculated for varying levels of IQ: with Chronbach alpha scores of .81 for the group with intellectual disability (IQ<70); .75 for the borderline IQ group (IQ= 71-80) and .93 for those above borderline IQ (IQ>81).

The SCS was administered by a member of the research team in a one-to-one meeting with the participant. Due to the high proportion of participants with low IQ, the research team read questions aloud to all participants to standardise the procedure, and the participant gave their answer verbally from a four-point, colour-coded response card. The researchers also ensured that each meeting did not last more than 45 minutes for those with an intellectual disability.

Self-reported measures of sexual thoughts, feelings and behaviours.

The measures reported below are those proposed by Grubin and others (see Grubin, 2008b).

Hypersexual behaviour. Assessed by recording how many days in the past week participants self-reported as having masturbated to orgasm (0-7 days).

Sexual Preoccupation (SP). Sexual preoccupation was assessed by the item 'how much time do you spend thinking about sex?' Responses were collated on a seven-point scale (1: Low [Very little]; 7: High [All the time]). Additional items relating to SP were 'what is the strength of your sexual urges and fantasies?' (1: Low; 7: High) and 'what is your ability to distract yourself from sexual thoughts?' (1: Easy; 7: Difficult).

These measures are carried out by one prescribing psychiatrist who is part of the treatment team, meaning that potential bias is possible. However, the data was triangulated with the SCS (completed by the independent research team) and cross verification from both sources demonstrated similar results and thus validation of the data. A Pearson's correlation revealed sexual compulsivity scores were significantly correlated with items relating to sexual pre-occupation within the clinical scores, such as the number of days engaged in sexual activity, $r = 0.306$, $p=.018$; the strength of sexual urges, $r = 0.432$, $p<.001$; and the ability to distract from sexual thoughts, $r = 0.507$, $p<.001$.

Procedure

Individuals who were perceived by prison staff (for example treatment facilitators) as having problems managing their sexual thoughts and behaviours were, with their consent, referred to prison healthcare. The psychiatrist assessed each referral, and where appropriate MMSA was prescribed. Participants continued to meet with the psychiatrist on a regular basis, and, at each meeting, measures of hypersexual behaviour and sexual preoccupation were collated as part of the patient-psychiatrist consultation.

Participants completed the sexual compulsivity measure (conducted by the research team) prior to commencing pharmacological treatment to establish baseline data, and every three months thereafter. Medical and offence related data were collated for each participant.

Ethical approval for the research was obtained from a UK University and HMPPS ethics committee. Ethical protocols (informed consent, debrief and support to participants, withdrawal confidentiality of data) were followed. Since the data were not anonymised, they remained at all times within the prison establishment, maintained as per Prison Service Orders 9020, 9015 and 1100.

Statistical process and procedure

Data from the various sources were inputted into Excel, and subsequently imported into SPSS v.22 for analysis. A one-way Repeated Measures ANOVA was conducted to explore changes in sexual compulsivity data. A series of Mixed Design ANOVAs were performed to explore, by type of medication (SSRIs vs AAs), potential changes (i) pre-medication, (ii) one month post-medication (iii) three months post-medication and (iv) six months post-medication across the clinical measures of hypersexuality. A MANOVA was carried out in order to explore the response to treatment in participants with ID and above average IQ.

Results

Sample Characteristics

For the full sample (n=127) the mean IQ = 87.05 (SD = 16.00; 59-117, assessed by Wechsler Abbreviated Scale of Intelligence-Second Edition [WASI-II; Wechsler, 2011] or, where available for the individual, Wechsler Adult Intelligence Scale-Fourth Edition [WAIS-IV; Wechsler, 2008]). Approximately half of the referral sample had ID or borderline ID (44% IQ < 80). Given this high percentage statistical analyses were broken down by IQ group for several of the measures to test for effects of IQ.

In terms of ethnicity, all participants with available data were 'White British' with the exception of two 'White Other' and one 'Black British Caribbean'. Two participants self-identified as transgender women, though they are not undergoing any hormone treatment or medication for this. The mean age was 45.69 (SD = 14.48; 26-82). In terms of previous offences, the majority of participants had a history of previous sexual offences with a mean of 2.99 previous sexual contact offences and 1.77 previous non-contact sexual offences per person. Referrals were serving a range of sentences: around 30% were serving a life or indeterminate public protection[3] (IPP) sentence; and around 42% had a determinate sentence of between 1 and 14 years. There was no sentence length data for 28% of the participants.

Data regarding treatment in sex offending treatment programmes (SOTPs) indicated that of the 84 (60%) participants with data, 83% (n=70) had completed an SOTP prior to medication (data were inputted on referral for medication). Static risk was reported from RM2000/S

[3] An indeterminate sentence for public protection was used to protect the public from serious offenders whose crimes did not warrant a life sentence. These were used between 2005 and 2012 in the UK and offenders are only released when the parole board deem them to be low enough in risk. A life sentence lasts for the whole of the person's life, however they may be considered for parole at some point, but if they were to commit any other crime they would be returned to prison.

scores. The mean risk matrix score was high, with a mean of 3 and a mode of 4 (very high). Pre-treatment dynamic risk data were collated from SARN reports. The highest scoring dynamic risk factor was 'sexual preoccupation' (offence chain) with a mean of 1.92 and a mode of two. A score of two indicates the risk factor is strongly characteristic; thus, for this population, sexual preoccupation is a strong risk factor. This is closely followed by 'poor problem solving generally' (M = 1.85, mode = 2), 'sexual preoccupation generally' (M = 1.85, mode = 2), 'lack of emotional intimacy generally' (M = 1.84, mode = 2), 'inadequacy generally' (M = 1.56, mode = 2) and 'sexual preference for children generally' (M = 1.52, mode = 2). The lowest scoring dynamic risk factor was 'adversarial sexual attitudes' in the offence chain (M = 0.23, mode = 0) followed by 'women are deceitful' in the offence chain (M = 0.30 mode = 0). The other low scoring factors were 'poor emotional control' in the offence chain (M = 0.33, mode =0), and 'sexualised violence' in the offence chain (M = 0.36, mode = 0).

Sexual compulsivity

A one-way repeated measures ANOVA was conducted to compare scores of sexual compulsivity at T0 (pre-medication), T3 (three months) and T6 (six months) post-medication. The sample (n=33) comprised only those participants that continued to take medication for six months after their baseline date. This therefore excludes participants who withdrew consent within six months, those that left prison in this time and those that were no longer taking medication or those that stopped and re-started. As Figure 1 demonstrates, there was a significant effect for time, $F(2,31) = 48.06$, $p = .001$, multivariate partial eta-squared = .76. with scores reducing over time (see Figure 1). There was a significant reduction in scores between T0 and T3 $F(1,31) = 55.15$, $p = .001$ multivariate partial eta-squared = .63 and between T3 and T6 $F(1,31) = 5.07$, $p = .03$, multivariate partial eta-squared = .14.

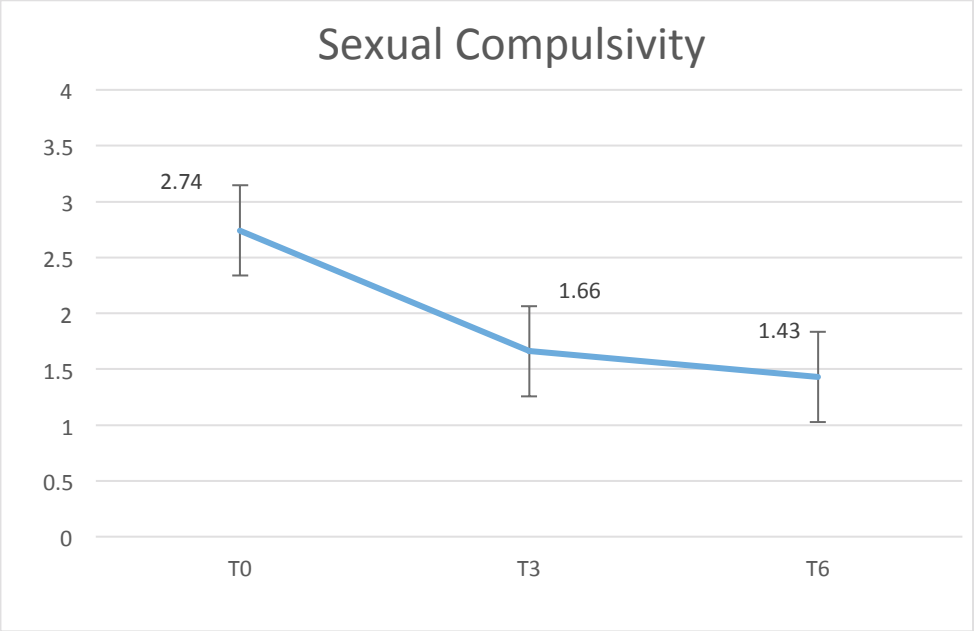

Figure 1: Mean Sexual Compulsivity Scores for participants taking medication to reduce sexual preoccupation: pre-medication (T0), three months' post-medication (T3) and six months' post-medication (T6).

A one-way ANOVA was conducted to explore the sexual compulsivity scores for varying levels of participant's IQ. Results revealed no significant difference in scores between low IQ (M=2.7, SD=.34), borderline IQ (M=2.8, SD=.16), and above borderline IQ (M=2.6, SD=.11); F (2,51) =.545, p =.583.

Findings from clinical measures used to establish levels of sexual preoccupation and hypersexuality

Analyses and graphs for participants' scores on the clinical measures over three time periods are presented below. T0 represents the time before participants started taking medication; T1 equates to approximately one month after participants started taking medication; T3 equates

to approximately 3-4 months after participants started taking medication; and T6, six months' post-medication. The sample (n=37) comprised only those participants that continued to take medication for six months after their baseline date. This excludes any participants who withdrew consent within six months, those that left prison in this time and those that are no longer taking medication or those that stopped and re-started. For the purposes of analysis, two groups are reported: (i) participants prescribed SSRIs and (ii) participants prescribed AAs (alone or in addition to SSRIs). The number of participants taking AAs alone was too low to be able to produce meaningful analysis. The three ANOVAs were conducted using Bonferroni adjusted alpha levels of .05/4 = .0125 per test to control for the familywise Type I error rate.

Clinical measure: Hypersexuality; Assessed as number of days masturbated leading to orgasm

A mixed 2 X 3 ANOVA indicated a significant main effect of time (T0, T1, T3, T6) on hypersexuality, $F(3,105) = 11.92$, $p = .001$. Partial eta-squared = .254, with hypersexuality reducing over time (see Figure 2). Contrasts revealed that there was a significant decrease in hypersexuality between T0 (pre-medication) and T1 (one month post-medication), $F(1,35) = 11.63$, $p = .002$. Partial eta-squared = .249.

There was a significant effect of medication type (SSRIs, AAs), $F(1,35) = 7.69$, $p = .009$, with the AAs group presenting with significantly higher levels of sexual preoccupation. There was no interaction between medication type and time on level of sexual preoccupation, $F(3,105) = 1.67$, NS.

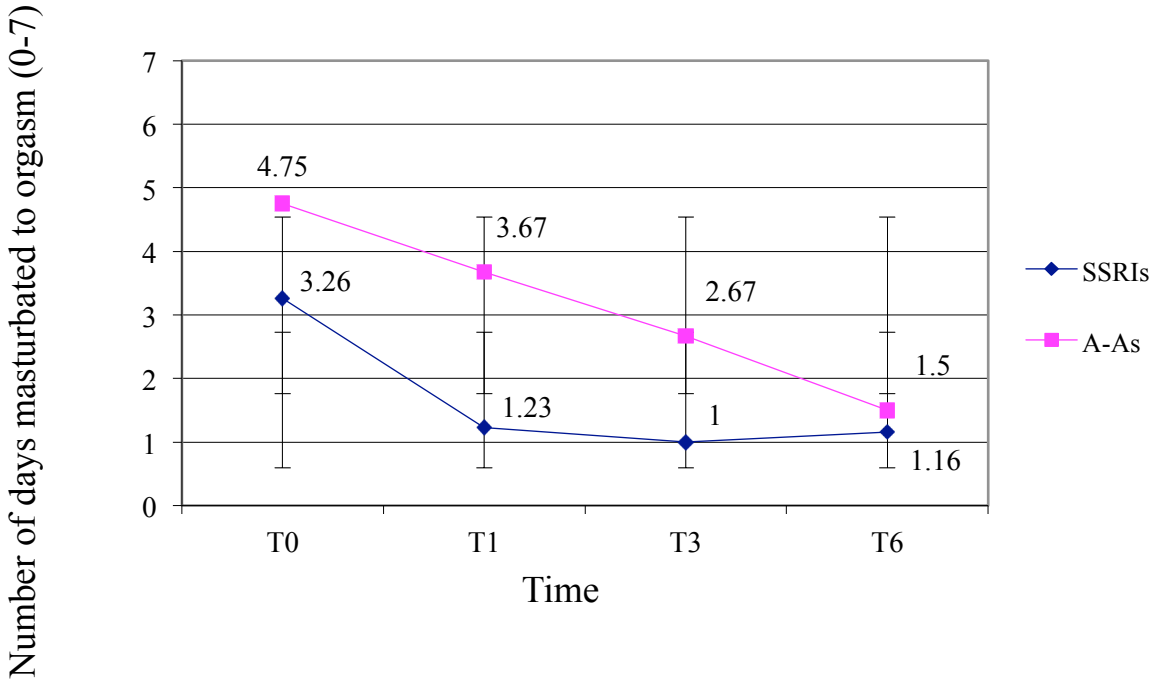

Figure 2: Mean number of days masturbated in previous week for participants taking (i) SSRIs and (ii) AAs

Clinical measure: Sexual Preoccupation; Time spent thinking about sex

A mixed 2 X 3 ANOVA indicated a significant main effect of time (T0, T1, T3, T6) on sexual preoccupation, $F(3,108) = 16.07$, $p = .001$ Partial eta-squared = .309, with sexual preoccupation reducing over time (see Figure 3). Contrasts revealed that there was a significant decrease in sexual preoccupation between T0 (pre-medication) and T1 (one month post-medication), $F(1,36) = 19.75$, $p = .001$. Partial eta-squared = .354.

There was no significant effect of medication type (SSRIs, AAs) on sexual preoccupation, $F(1,36) = 6.20$, $p = .018$. Partial eta-squared = .147. There was no interaction between medication type and time on sexual preoccupation, $F(3,108) = 1.80$, NS.

Results from a MANOVA revealed no significant difference at T3 in time spent thinking about sex for varying levels of IQ, F (2,26) = 1.19, NS.

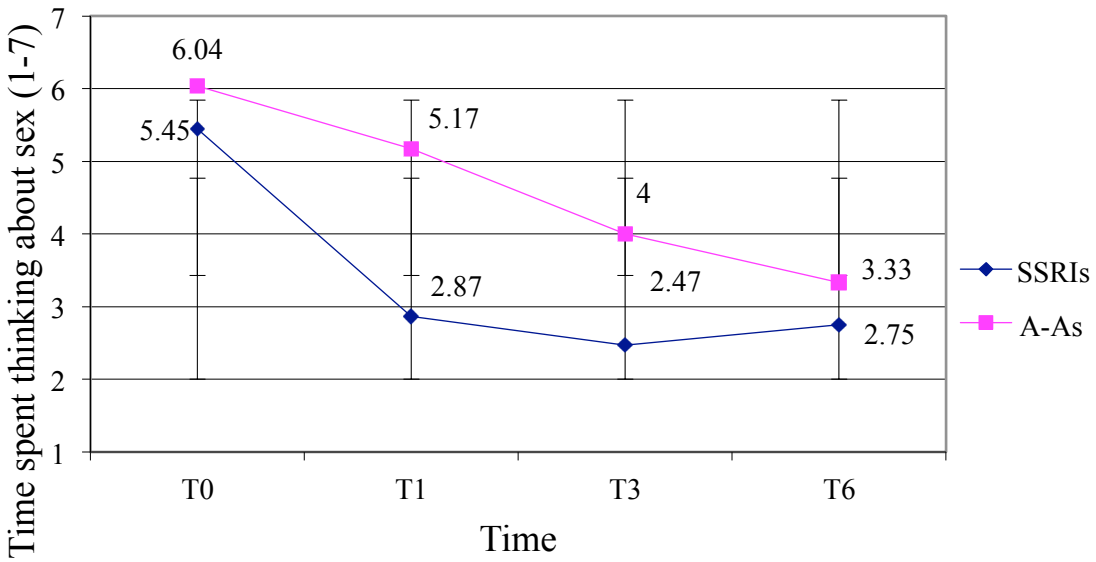

Figure 3: Amount of time currently spent thinking about sex for participants taking (i) SSRIs and (ii) AAs

Clinical measure: Sexual Preoccupation; Strength of sexual urges

A mixed 2 X 3 ANOVA indicated a significant main effect of time (T0, T1, T3, T6) on strength of sexual urges, F(3,108) = 18.75, p = .001 Partial eta-squared = .342 (see Figure 4). Contrasts revealed that there was a significant decrease in the inability to distract from sexual thoughts between T0 (pre-medication) and T1 (one month post-medication), F(1,36) = 17.79, p = .001. Partial eta-squared = .331.

There was no significant effect of medication type (SSRIs, AAs) on strength of sexual urges, F (1,36) = 5.85, p = .021. Partial eta-squared = .14. There was no interaction between medication type and time on ability to distract from sexual thoughts, F(3,108) = 2.35, NS.

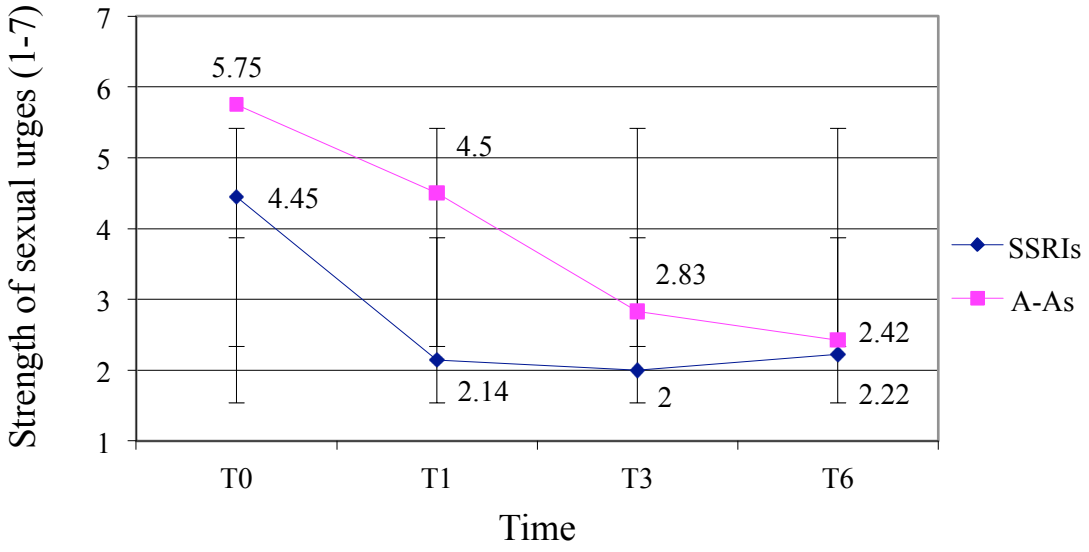

Figure 4: Strength of sexual urges for participants taking (i) SSRIs and (ii) AAs

Clinical measure: Sexual Preoccupation; Ability to distract from sexual thoughts

A mixed 2 X 3 ANOVA indicated a significant main effect of time (T0, T1, T3, T6) on the individual's ability to distract themselves from sexual thoughts, F(3,108) = 21.13, p = .001. Partial eta-squared = .370. Contrasts revealed that there was a significant decrease in the inability to distract from sexual thoughts between T0 (pre-medication) and T1 (one month post-medication), F(1,36) = 10.19, p = .003. Partial eta-squared = .221 (see Figure 5).

There was a significant effect of medication type (SSRIs, AAs) on ability to distract from sexual thoughts, F (1,36) = 10.12, p = .003. Partial eta-squared = .219. There was an

interaction between medication type and time on ability to distract from sexual thoughts, F(3,108) = 3.25, p = .024, partial eta-squared = .083.

Results from a MANOVA revealed no significant difference at T3 in ability to distract from sexual thoughts for varying levels of IQ, F (2,26) = 2.08, NS.

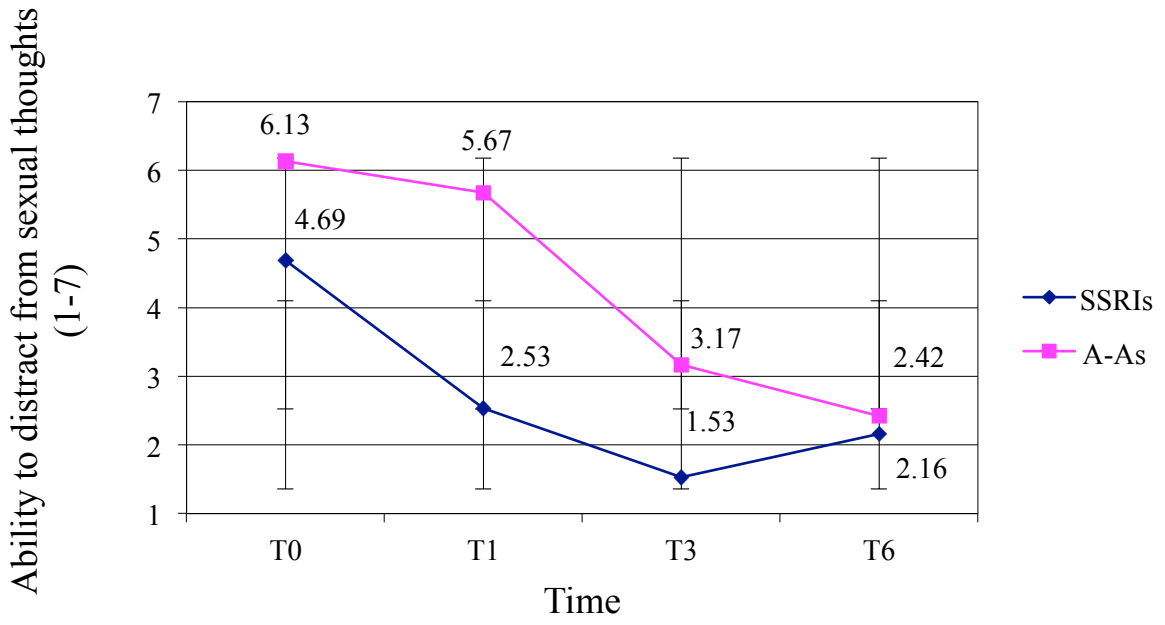

Figure 5: Ability to distract from sexual thoughts for participants taking (i) SSRIs and (ii) AAs

Discussion

The main findings of this research are that, for both types of medication assessed (SSRIs and AAs), pharmacological treatment significantly reduced sexual preoccupation and hypersexual behaviour, with declines in preoccupation and hypersexual behaviour just one month after medication – replicating the results of Kafka and Prentky (1992) who reported significant declines by week four of SSRI medication for individuals with paraphilic and non-paraphilic

sexual addictions. In the current study, reductions continued at three months and six months, levelling off with the SSRIs but continuing to show a steady decline with the AAs.

These reductions in the clinical measures of hypersexual disorder, captured by the consulting psychiatrist as part of patients' ongoing medical treatment, were confirmed with the psychometric measure of sexual compulsivity, which were collated independently of the clinical measures. Reductions were such that the mean levels of sexual compulsivity for the present sample six months' post medication, were similar to those reported elsewhere for the general population in the prison (see Winder et al., 2013), and equivalent to those reported by UK male university students (Winder, Lievesley & Day, in prep.). Whilst a mean score of 1.0 with the sexual compulsivity measure would indicate an individual who is not reporting problems with sexual urges impacting upon their life in any domain, this level may be an over-optimistic goal for sexually preoccupied prisoners, and equivalence with an age-appropriated non-offending norm would be the preferred match.

It should be noted that the medication to manage sexual arousal is not designed to eradicate all sexuality from individuals (although some prisoners, particularly those with a long history of time in prison for sexual offences, have reported that this is what they are hoping for – see Lievesley et al., 2014). However, both healthy sexual functioning, together with an emotionally intimate relationship with another, address two of the principal dynamic risk factors for sexual recidivism. This is important if we are viewing the use of medication from the more risk-oriented stance of the Risk, Need and Responsibility model (Andrews, Bonta & Hoge, 1990; Andrews, Bonta & Wormith, 2011). Having a healthy sexual relationship and a close emotional relationship also fit with the Good Lives Model (Ward, 2002a; 2002b; Ward & Brown, 2004), whereby healthy sexual expression is recognised as a primary human good, and if achieved is hypothesised to reduce recidivism.

In terms of the types of medication utilised to manage sexual arousal, it is important to reiterate that SSRIs are not part of the current UK NICE guidelines for the treatment of hypersexuality. One of the difficulties is the lack of randomised control trial (an attempt at this was made by Grubin in 2006 but had to be abandoned due to an inadequate sample). The second challenge highlighted by NICE (2015) is the lack of comparison data between AAs and SSRIs. The present study seeks to address this need.

The current study also allowed a description of the prisoners perceived as struggling to cope with hypersexual disorder: referrals were a particularly high (static) risk, sexually preoccupied group with a greater prevalence of dynamic risk factors being 'strongly present' in these individuals (in comparison with prisoners with sexual convictions in the UK generally – see Winder et al., 2013). The results also indicated the presence of the dynamic treatment needs of 'sexual preoccupation' (in the offence chain), 'poor problem solving', 'sexual preoccupation' (generally in life), 'lack of an emotionally intimate relationship', 'feelings of inadequacy' and 'sexual preference for children'.

Hypersexuality has also been demonstrated as being comorbid with a number of psychiatric conditions, including mood and anxiety disorders, substance-abuse (Raymond, Coleman, & Miner, 2003; Kafka & Prentky, 1994; Reid, 2007), and poor occupational and interpersonal functioning (Black, Kehrberg, Flumerfelt, & Schlosser, 1997). Future papers will examine several of these co-morbidities, as well as reporting further on reported side effects of each type of medication (but see Lievesley et al., 2014, for a summary of side effects reported by patients prescribed SSRI medication for hypersexuality). There are additional health concerns presented by hypersexuality: for example, excessive masturbation may occur, resulting in genital soreness (Winder, 2016), thus hypersexual disorder can be problematic in impacting upon the physical and mental wellbeing of self and others.

A further factor of note was that forty-four percent of prisoners referred for medication to manage sexual arousal were borderline/intellectually disabled. This is out of proportion with the figures of approximately one in four of the prisoners at this prison being borderline/intellectually disabled (K. Hocken, personal communication, February 13, 2016). Suggested explanations for this are that these prisoners may have greater difficulty managing their hypersexuality (potentially they have less opportunities to distract themselves, for example, by reading or writing), or that they are more acquiescent to suggestions for referral by prison staff (given acquiescence is associated with intellectual disability; Gudjonsson, 1990). They may also be more accepting of medication as a method of treatment, or their struggle to manage their hypersexuality may be less well hidden than by other prisoners. There were few differences in client characteristics and response to treatment between borderline and ID referrals and non-intellectually disabled referrals for the pharmacological treatment of hypersexual disorder in this UK sample (see Hocken, Winder, Lievesley, Norman & Elliott, 2015). Further exploratory work is underway to ascertain the reasons behind the relatively high proportion of borderline/ID referrals.

A primary limitation of this evaluation is the use of self-report data, with resultant questions about its validity and reliability. However, the data were collated on different occasions and within different contexts (clinical data were collected by the prison psychiatrist; sexual compulsivity data were collected by the research team). Moreover, participants were not reminded of their previous responses (collated 4-12 weeks previously), nor did the research team review data from previous instances. The clinical data and psychometric data demonstrated good triangulation, and the robustness of the data has been underpinned by a qualitative study comprising interviews with participants (see Lievesley et al., 2014).

A further limitation of the analyses presented here are the aggregation of datasets (those service users prescribed AAs were presented in the same experimental group as service

users prescribed both AAs and SSRIs). Only two prisoners were prescribed GnRH and thus it was not feasible to conduct an analysis of these data. Data from two of the three medications groups (SSRIs, AAs, SSRIS/AAs) were aggregated (the SSRIs plus AAs were combined with the AAs only) partly because the focus of the evaluation was to consider if SSRIs significantly reduced hypersexuality. It was therefore important to consider the SSRIs group as a standalone experimental group and to ascertain how they performed compared to individuals taking AAs (whether or not there was any additional medication). AAs have already been tested as per NICE (2015) guidelines and their anti-libidinal effect demonstrated sufficiently. It was also the case that the AAs only group was considerably smaller than the other two experimental groups so meaningful statistical analysis could not be conducted, however a future study (with a larger sample) should be able to extricate all three of these groups and provide inter-group comparisons.

In addition, it is recognised that the RM2000 has not been validated for those with ID, and so results of this assessment should be taken with a degree of caution (Pryboda, Tully & Brown, 2015). It is acknowledged that objective measures such as the Penile Plethysmograph (PPG) may add a level of reliability to the research (Murphy, Ranger, Stewart, Dwyer & Fedoroff, 2015); however, the PPG is an invasive procedure that is highly labour-intensive (Laws, 2003), has several limitations itself and is not available for use in this prison establishment. The use of a behavioural/objective measure is being considered for the future as it would also help to reduce the potential for impression management by participants. Impression management is currently assessed using psychometric scales that will be reported on in a future publication (Lievesley et al, in prep.).

A further limitation of this research is the lack of a control group – this is now being addressed and the results will be presented in a future publication, once sufficient data are available. It is also recognised that this research is currently limited to one site, which may

have implications for the findings (such as over-estimating the magnitude of the results and results not generalising over other prison populations). This is currently being addressed as the research is now being extended to seven other prison sites within the UK. Future research should also explore the differences in treatment response between new and repeat sexual offenders.

It is recognised that completing an SOTP course may be a confounding variable to the medication effects, and this is especially difficult to extricate from the data since 83% of the sample had already completed an SOTP, whilst the majority of the remaining were highly likely to either have commenced (but not yet finished an SOTP) or to be on the waiting list (given the prison where this evaluation was based only accepts individuals willing to undergo treatment in the SOTP). In future research, it may be possible to evaluate the impact of medication where no treatment has been available (or perhaps more realistically, before treatment has been commenced) but this is not feasible at the current time.

There is an additional confounding factor with regard to type of medication offered to individuals in the prescribing of either SSRIs or AAs. Prescribing practice is based on the clinical judgement of the psychiatrist, underpinned by dosage and prescribing protocols prepared by Grubin (2015). Typically, prisoners will be prescribed SSRIs as a starting point, but if these are not deemed to be reducing hypersexuality (as assessed by the psychiatrist and taking into account reports from the patient in addition to any other input from, for example, psychologists), the patient will be moved on to AAs.

Conclusions

Both types of pharmacological treatment (SSRIs and AAs) significantly reduced hypersexual behaviour and sexual preoccupation. The same significant reduction was demonstrated from pre to post pharmacological treatment in levels of sexual compulsivity. These findings indicate that both SSRIs and AAs can work effectively as medication to manage sexual

arousal and hypersexual disorder. This supports the decision made by the HMPPS to make MMSA available across the majority of the UK prison estate from 2016. However, ongoing evaluation work, including a control group study, an analysis of the impact of each of the three main medication groups (SSRIs, AAs, and SSRIS with AAs), an extension of the evaluation into prisons with open conditions, as well as following up medicated individuals in the community, are an important part of this process.

References

Andrews, D. A., Bonta, J., & Hoge, R. D. (1990). Classification for effective rehabilitation: Rediscovering psychology. *Criminal Justice and Behavior, 17*, 19-52. doi: 10.1177/0093854890017001004.

Andrews, D. A., Bonta, J., & Wormith, J. S. (2011). The risk-need-responsivity (RNR) model: Does adding the good lives model contribute to effective crime prevention? *Criminal Justice and Behavior, 38,* 735-755. doi:10.1177/ 0093854811406356

Beech, A., & Mitchell, I. J. (2005). A neurobiological perspective on attachment problems in sexual offenders and the role of selective serotonin re-uptake inhibitors in the treatment of such problems. *Clinical Psychology Review, 25,* 153-182. doi: 10.1016/j.cpr.2004.10.002.

Beech, A., Fisher, D., & Ward, T. (2005). Sexual murderers' implicit theories. *Journal of Interpersonal Violence*, 20(11), 1366-1389.

Black, D. W., Kehrberg, L. L., Flumerfelt, D. L., & Schlosser, S. S. (1997). Characteristics of 36 subjects reporting compulsive sexual behavior. *American Journal of Psychiatry*, *154*(2), 243-249. doi: 10.1176/ajp.154.2.243.

Blacker, J., Beech, A.R., Wilcox, D.T., & Boer, D.P. (2011). The assessment of dynamic risk and recidivism in a sample of special needs sexual offenders. Psychology, Crime and Law, 17 (1), 75-92.

Bradford, J. M. W. (2001). The neurobiology, neuropharmacology, and pharmacological treatment of the paraphilias and compulsive sexual behavior. *Canadian Journal of Psychiatry, 46,* 26-33. doi: 10.1177/070674370104600104.

Bradford, J.M.W., & Pawlak, A. (1993). Double-blind placebo crossover study of cyproterone acetate in the treatment of the paraphilias. *Archives of Sexual Behavior, 22,* 383-402. doi: 10.1007/BF01542555.

Briken, P., Hill, A., & Berner, W. (2003). Pharmacotherapy of paraphilias with long-acting agonists of luteinizing hormone-releasing hormone: A systematic review. *The Journal of Clinical Psychiatry*, *64*(8), 890-897.

CompCare. (1987). *Hope and recovery: A twelve step guide for healing from compulsive sexual behaviour.* Minneapolis, MN: CompCare publishers.

Grubin, D. (2008a). *Medical Models and Interventions in Sexual Deviance. In Sexual Deviance* (Laws D. R., O'Donohue W.T., eds) (2nd ed.). The Guildford Press, New York.

Grubin, D. (2008b). The use of medication in the treatment of sex offenders. *Prison Service Journal*, *137,* 37-43.

Grubin, D. (2015). Medication to Manage Sexual Arousal - Prescribing Guidelines (n.p.).

Guay, D. R. P. (2009). Drug treatment of paraphilic and nonparaphilic sexual disorders. *Clinical Therapeutics, 31*(1), 1-31. doi: 10.1016/j.clinthera.2009.01.009.

Gudjonsson, G. H. (1990). The relationship of intellectual skills to suggestibility, compliance and acquiescence. *Personality and Individual Differences, 11*(3), 227-231. doi: 10.1016/0191-8869(90)90236-K.

Hanson, R. K., & Harris, A. J. R. (2000). Where should we intervene? Dynamic predictors of sexual offense recidivism. *Criminal Justice and Behavior, 27,* 6-35. doi: 10.1177/0093854800027001002.

Helmus, L., Babchishin, K. M., & Hanson R. K. (2013). The predictive accuracy of the Risk Matrix 2000: A meta-analysis. Sexual Offender Treatment, 8 (2), 1-24.

HM Prison Service. (2005). STEP 4: The Sex Offender Treatment Programme in prison: Addressing the offending behaviour of rapists and sexual murderers. Retrieved from https://www.researchgate.net/profile/Anthony_Beech/publication/260293579_STEP_4_The_Sex_Offender_Treatment_Programme_in_prison_addressing_the_offending_be

haviour_of_rapists_and_sexual_murderers/links/0a85e530a60b9cd980000000.pdf?origin=publication_detail.

HMPS. (2008). Psychiatric Assessment for Sexual Offenders. *Interventions group*.

HMPS. (2016, July 14). Offender Behaviour Programmes (OBPs). Retrieved from https://www.justice.gov.uk/offenders/before-after-release/obp.

Hocken, K. (2014). *How effectively does the Structured Assessment for Risk and Need (SARN) assess risk in men with Intellectual Disability who have committed a sexual offence?* Unpublished PhD thesis, Nottingham Trent University.

Hocken, K., Winder, B., Lievesley, R., Elliott, H. & Norman, C. (October, 2015). The use of anti-androgen and SSRI medication to treat sexual preoccupation in intellectually disabled sexual offenders: client characteristics and response to treatment. Oral Presentation. The Association for the Treatment of Sexual Abusers. Montreal, Canada.

Jordan, K., Fromberger, P., Stolpmann, G., & Müller, J. L. (2011). The role of testosterone in sexuality and paraphilia--a neurobiological approach. Part I: testosterone and sexuality. *The Journal of Sexual Medicine, 8*(11), 2993-3007. doi: 10.1111/j.1743-6109.2011.02394.x.

Kafka, M. P. (2010). Hypersexual disorder: A proposed diagnosis for DSM-V. Archives of sexual behavior, 39(2), 377-400.

Kafka, M. P. (2014). What happened to hypersexual disorder?. Archives of sexual behavior, 43(7), 1259.

Kafka, M. P., & Prentky, R. A. (1992). Fluoxetine-treatment of nonparaphilic sexual addictions and paraphilias in men. *Journal of Consulting and Clinical Psychology, 53*(10)*,* 351-358.

Kafka, M. P., & Prentky, R. A. (1994). Preliminary observations of DSM-III—R Axis I comorbidity in men with paraphilias and paraphilia-related disorders. *Journal of Clinical Psychiatry, 55*(11), 481-487.

Kalichman, S. C., & Rompa, D. (2001). The sexual compulsivity scale: Further development and use with HIV-positive persons. *Journal of Personality Assessment, 76,* 379-395. doi: 10.1207/S15327752JPA7603_02.

Kalichman, S. C., Johnson, J. R., Adair, V., Rompa, D., Multhauf, K., & Kelly, J. A. (1994a). *Sexual Compulsivity Scale*. doi:10.1037/t04027-000.

Kalichman, S. C., Johnson, J. R., Adair, V., Rompa, D., Multhauf, K., & Kelly, J. A. (1994b). Sexual sensation seeking: Scale development and predicting AIDS-risk behaviour among homosexually active men. *Journal of Personality Assessments, 62*(3), 385-397. doi: 10.1207/s15327752jpa6203_1.

Kaplan, M. S., & Krueger, R. B. (2010). Diagnosis, assessment, and treatment of hypersexuality. *Journal of Sex Research, 47*(2-3), 181-198. doi: 10.1080/00224491003592863.

Khan, O., Ferriter, M., Huband, N., Powney, M. J., Dennis, J. A., & Duggan, C. (2015). Pharmacological interventions for those who have sexually offended or are at risk of offending. *The Cochrane Library*.

Kinsey, A. C., Pomeroy, W. M., & Martin, C. E. (1948). *Sexual behaviour in the human male.* Philadelphia: W.B. Saunders Company.

Knight, R. A., & Thornton, D. (2007). *Evaluating and improving risk assessment schemes for sexual recidivism: A long-term follow-up of convicted sexual offenders* (Document No. 217618). Washington, DC: U.S. Department of Justice.

Laws, D. R. (2003). Penile plethysmography: Will we ever get it right In T. Ward, D. R. Laws, & S. M. Hudson (Eds.), Sexual deviance: Issues and controversies (pp. 82–102). Thousand Oaks, CA: Sage.

Lievesley, R., et al. (in prep.). An exploration of the personality characteristics of individuals convicted of a sexual offence who take medication to manage sexual arousal.

Lievesley, R., Elliott, H. J., Winder, B., & Norman, C. (2014). Understanding service users' and therapists' experiences of pharmacological treatment for sexual preoccupation and/or hypersexuality in incarcerated sex offenders. *The Journal of Forensic Psychiatry & Psychology*, *25*(3), 262-287. doi: 10.1080/14789949.2014.909867.

Murphy, L., Ranger, R., Stewart, H., Dwyer, G., & Fedoroff, J. P. (2015). Assessment of problematic sexual interests with the penile plethysmograph: an overview of assessment laboratories. *Current psychiatry reports*, *17*(5), 1-5.

National Offender Management Service (2013). Structured Assessment of Risk, Need and Responsivity (Sexual Offending): Risk Report Guidance Notes. Ministry of Justice.

NICE (2015, July). *Hypersexuality: fluoxetine*. Retrieved from https://www.nice.org.uk/advice/esuom46/chapter/full-evidence-summary#introduction-and-current-guidance-2

Pryboda, J., Tully, R. J., & Browne, K. D. (2015). Is the Risk Matrix 2000 applicable to intellectually disabled sex offenders?. *Aggression and violent behavior,* 25, 184-190.

Raymond, N. C., Coleman, E., & Miner, M. H. (2003). Psychiatric comorbidity and compulsive/impulsive traits in compulsive sexual behavior. *Comprehensive Psychiatry*, *44*(5), 370-380. doi: 10.1016/S0010-440X(03)00110-X.

Thibaut, F., De La Barra, F., Gordon, H., Cosyns, P., Bradford, J. M. W., & the WFSBP Task Force on Sexual Disorders (2010). The World Federation of Societies of Biological

Psychiatry (WFSBP) Guidelines for the biological treatment of Paraphilias. *The World Journal of Biological Psychiatry, 11*(4)*,* 604-655. doi: 10.3109/15622971003671628.

Thornton, D. (2002). Constructing and testing a framework for dynamic risk assessment. Sexual Abuse: A Journal of Research and Treatment, 14(2), 139-153.

Thornton, D. (2010). Scoring guide for Risk Matrix 2000.10/SVC. Unpublished document.

Thornton, D., Mann, R., Webster, S., Blud, L., Travers, R., Friendship, C., & Erikson, M. (2003). Distinguishing and combining risks for sexual and violent recidivism. *Annals of the New York Academy of Science, 989*, 225-235. doi: 10.1111/j.1749-6632-2003.tb07308.x.

Tully, R. J., Browne, K. D., & Craig, L. A. (2015). An examination of the predictive validity of the structured assessment of risk and need–treatment needs analysis (SARN-TNA) in England and Wales. Criminal justice and behavior, 42(5), 509-528.

Turner, D., Basdekis-Jozsa,R., & Briken, P. (2012). *Prescription of testosterone-lowering medications in sex offender treatment in German forensic-psychiatric institutions.* Presentation at the International Association for the Treatment of Sexual Offenders, Berlin, September 2013.

Ward, T. (2002a). Good lives and the rehabilitation of offenders: promises and problems. *Aggression and Violent Behavior*, *7*(5), 513-528. doi: 10.1016/S1359-1789(01)00076-3.

Ward, T. (2002b). The management of risk and the design of good lives. *Australian Psychologist*, *37*(3), 172-179. doi: 10.1080/00050060210001706846.

Ward, A., & Brown, M. (2004). The good lives model and conceptual Issues in offender rehabilitation. *Psychology, Crime and Law, 10*(3), 243-257. doi: 10.1080/10683160410001662744.

Webster, S. D., Mann, R. E., Carter, A. J., Long, J., Milner, R. J., O'Brien, M. D., ... & Ray, N. L. (2006). Inter-rater reliability of dynamic risk assessment with sexual offenders. Psychology, Crime & Law, 12(4), 439-452.

Wechsler, D. (2008). *Wechsler Adult Intelligence Scale–Fourth Edition*. San Antonio, TX: Pearson.

Wechsler, D. (2011). *Wechsler Abbreviated Scale of Intelligence–Second Edition* Manual. Bloomington, MN: Pearson.

Winder, B. (2016). The management of hypersexuality in men. *Trends in Urology & Men's Health, 7*(5), 9-12. doi: 10.1002/tre.540.

Winder, B., Hocken, K., Lievesley, R., Elliott, H., Norman, C., & Payne, N. (2013). *Evaluation of the use of anti-libidinal medication with convicted sex offenders with high levels of sexual preoccupation*. Presentation at the Association for the Treatment of Sexual Abusers conference, Chicago, October 2013.

Winder, B., Lievesley, R., Elliott, H.J., Norman, C., & Kaul, A. (2014). Understanding the journeys of high risk male sex offenders voluntarily receiving medication to reduce their sexual preoccupation and / or hypersexuality. In D.T. Wilcox, T. Garrett, & L. Harkin, (Eds.). *Sex offender treatment: A case study approach to issues and interventions.* Chichester, UK: Wiley & Sons Ltd.

Figure Captions

Figure 1: Mean Sexual Compulsivity Scores for participants taking (i) SSRIs and (ii) AAs to reduce sexual preoccupation pre-medication and three months post-medication.

Figure 2: Number of days masturbated in previous week for participants taking (i) SSRIs and (ii) AAs

Figure 3: Amount of time currently spent thinking about sex for participants taking (i) SSRIs and (ii) AAs

Figure 4: Strength of sexual urges and fantasies for participants taking (i) SSRIs and (ii) AAs

Figure 5: Ability to distract from sexual thoughts for participants taking (i) SSRIs and (ii) AAs