

Kent Academic Repository

Full text document (pdf)

Citation for published version

Tyler, Nichola and Gannon, Theresa A. and Lockerbie, Lona and Ó Ciardha, Caoilte (2017) An Evaluation of a Specialist Firesetting Treatment Programme for Male and Female Mentally Disordered Offenders (The FIP-MO). *Clinical Psychology and Psychotherapy* . ISSN 1063-3995.

DOI

<https://doi.org/10.1002/cpp.2172>

Link to record in KAR

<https://kar.kent.ac.uk/64960/>

Document Version

Author's Accepted Manuscript

Copyright & reuse

Content in the Kent Academic Repository is made available for research purposes. Unless otherwise stated all content is protected by copyright and in the absence of an open licence (eg Creative Commons), permissions for further reuse of content should be sought from the publisher, author or other copyright holder.

Versions of research

The version in the Kent Academic Repository may differ from the final published version.

Users are advised to check <http://kar.kent.ac.uk> for the status of the paper. **Users should always cite the published version of record.**

Enquiries

For any further enquiries regarding the licence status of this document, please contact:

researchsupport@kent.ac.uk

If you believe this document infringes copyright then please contact the KAR admin team with the take-down information provided at <http://kar.kent.ac.uk/contact.html>

Running Head: FIRESETTING TREATMENT

An Evaluation of a Specialist Firesetting Treatment Programme for Male and Female
Mentally Disordered Offenders (The FIP-MO)

Nichola Tyler^{ab}, Theresa A. Gannon^{ab}, Lona Lockerbie^{ba}, and Caoilte Ó Ciardha^a

^a CORE-FP, School of Psychology, University of Kent, UK

^b Forensic and Specialist Care Group, Kent & Medway NHS Social Care Partnership
Trust, UK.

Author Note

This research was partially supported by an Economic and Social Research Council grant awarded to Theresa A. Gannon (RES-062-23-2522).

Correspondence concerning this article should be addressed to Nichola Tyler, CORE-FP, School of Psychology, Keynes College, University of Kent, Canterbury, Kent, CT2 7NP, England. N.F.Tyler@kent.ac.uk

Abstract

Individuals who set deliberate fires are frequently encountered by clinicians working in forensic mental health services. However, little attention has been paid to developing standardised treatment for this behaviour and few evaluations of treatment have been conducted in forensic mental health services. This study evaluates a new standardised group cognitive behavioural treatment programme for individuals residing in forensic psychiatric hospitals who have engaged in deliberate firesetting (The Firesetting Intervention Programme for Mentally Disordered Offenders; FIP-MO). Sixty-three male and female patients with a history of deliberate firesetting commenced FIP-MO treatment. Patients who met the referral criteria for treatment but who resided at hospitals where FIP-MO treatment was not available were recruited as a Treatment as Usual comparison group. The treatment group completed a battery of psychometric assessments pre and post treatment, with the comparison group completing these at similar time points. Results showed that patients who completed the FIP-MO made significant improvements post-treatment, relative to the comparison group on fire-related measures (e.g., problematic interest and associations with fire) and anger expression. Further, effect size calculations showed that the treatment group made larger pre-post treatment shifts on the majority of outcome measures compared to the comparison group. These findings suggest that FIP-MO treatment is effective for reducing some of the key factors associated with deliberate firesetting.

Keywords: arson, firesetting, treatment, offending, cognitive behavioural therapy, evaluation.

Key Practitioner Message

- Adults who set deliberate fires are frequently encountered by clinicians in mental health settings. Until recently, no standardised treatment was available for these clients.
- A new specialist group intervention—the FIP-MO—was developed and evaluated for individuals with a mental disorder who had engaged in deliberate firesetting.
- The FIP-MO targets key psychological factors identified as being related to firesetting in the literature: problematic fire interest and associations with fire, offence supportive attitudes, social competency, self-management/coping skills, and risk management.
- Results indicate that the FIP-MO is effective in reducing some of the key deficits associated with deliberate firesetting relative to a treatment as usual comparison group.

Evaluation of a Specialist Firesetting Treatment Programme for Male and Female Mentally Disordered Offenders (The FIP-MO)

Deliberate firesetting is a huge problem worldwide in terms of economic costs, property damage, and human fatality and injury. Statistics show that in England between April 2016 and March 2017 there were 76,106 deliberately set fires, 1,027 fire-related casualties and 47 fire-related deaths (Home Office, 2017) with estimated costs to the total economy in 2008 of £1.7 billion (Department of Communities and Local Government, 2011). Similarly high figures have also been reported for both Australia (Smith, Jorna, Sweeney, & Fuller, 2014) and the US, where each year between 2010 and 2014 an estimated 261,330 deliberately set fires were reported to fire departments, costing the economy approximately \$1 billion in property damage and 440 civilian deaths (Campbell, 2017).

Adults who set deliberate fires are frequently encountered by clinicians working in forensic mental health settings. Research conducted in the UK, Sweden, and Finland suggests that between 10% and 54.4% of patients admitted to medium secure forensic mental health services have a recorded history of deliberate firesetting (either convicted or unconvicted; Coid, Kahtan, Gault, Cook, & Jarman 2001; Fazel & Grann, 2002; Hollin, Davies, Duggan, Huband, McCarthy, & Clarke, 2013; Long, Fitzgerald, & Hollin, 2015; Repo, Virkkunen, Rawlings, & Linnoila, 1997). Similar prevalence rates have also been reported within US general psychiatric samples (17.3% to 26%; Geller & Bertsch, 1985; Geller, Moynihan, & Fisher, 1992). Despite the significant costs associated with deliberate firesetting there has been a distinct lack of focus on developing psychological interventions to address this behaviour.

Historically, clinicians appear to have presumed that firesetters as a population are generalist offenders due to their diverse criminal histories and shared characteristics with other offenders (Doley, Fineman, Fritzon, Dolan, & McEwan, 2011; Gannon & Pina, 2010).

Subsequently, it appears that firesetters' treatment needs have been presumed to be met via general offending behaviour programmes (e.g., social skills and cognitive skills programmes), evidenced by the lack of focus on developing offence-specific interventions for this population (Gannon & Pina, 2010; Gannon et al., 2013; Palmer, Caulfield, & Hollin, 2007). However, recent research has shown that male incarcerated firesetters differ psychologically to matched non-firesetting offenders in terms of holding higher levels of fire interest, lower levels of perceived fire safety awareness, higher levels of anger cognition (i.e., rumination), and lower levels of self-esteem (Gannon et al., 2013). Further, Haines, Lambie, and Seymour (2006) found that adult imprisoned firesetters in New Zealand correctional services identified themselves as a distinct population who requested more specialised treatment.

Despite these findings, a UK national survey (Palmer et al., 2007) identified no standardised interventions available for adult firesetters across prisons, probation, or mental health services. This lack of offence-specific treatment for firesetters has not been limited to the UK; the situation in Australia and the US is similar (Doley, Dickens, & Gannon, 2015; Gannon & Pina, 2010), highlighting the paucity of treatment available for firesetters around the world. Thus, published evaluations of specialist firesetting interventions are seriously lacking. Until recently, the evidence base consisted mainly of small scale interventions with no quantitative assessment of treatment effectiveness or very small scale quantitative evaluations that lacked an adequate comparison group (Hall, 1995; Swaffer, Hagget, & Oxley, 2001; Taylor, Thorne, Robertson, & Avery, 2002; Taylor, Robertson, Thorne, Belshaw, & Watson, 2006). As a result, there has been little guiding information for consulting clinicians on "what works" with deliberate firesetters.

Recently, Gannon et al. (2015) reported the pilot and evaluation of a cognitive behavioural treatment programme for male deliberate firesetters detained in UK prisons. The

Firesetting Intervention Programme for Prisoners (FIPP; Gannon, 2012) is a cognitive behavioural group treatment programme specifically designed to address key factors associated with deliberate firesetting (i.e., fire interest/ problematic associations with fire, social competency, offence supportive attitudes, and self/emotional regulation) alongside general risk management. FIPP groups ran over 28 weeks and consisted of both weekly group and individual support sessions. A battery of psychometric measures were completed by participants pre-treatment, immediately post-treatment, and at three month follow-up using measures that targeted each of the key areas of treatment within the programme. Scores from FIPP completers (n = 54) were compared to a comparison group of firesetters (n = 45) who had not completed the FIPP but who engaged in treatment as usual over the study period, and completed the same battery of questionnaires at similar time points as FIPP completers.

Gannon et al. (2015) reported positive pre-post treatment shifts for FIPP completers relative to comparison firesetters on measures related to fire interest/ problematic associations with fire, offence supportive attitudes (i.e., fire specific, violent, antisocial), locus of control, and anger regulation. Further, FIPP participants were found to have made the most notable improvements in fire-related treatment areas, with firesetters who completed the FIPP being 3.45 times more likely to make an improvement in this area than comparison firesetters. These treatment effects were stable at three month follow up.

Gannon et al.'s (2015) study suggests that specialist cognitive behavioural therapy is effective for reducing key psychological factors associated with deliberate firesetting for male firesetters. However, Gannon et al.'s evaluation focussed only on male imprisoned firesetters despite the fact that significant number of individuals who set deliberate fires reside in forensic mental health services. Furthermore, female firesetters were not examined in Gannon et al.'s evaluation. Female firesetters are over-represented in forensic mental health samples, with around one in four firesetters reported as being female (Dickens,

Sugarman, Ahmad, Edgar, Hofberg, & Tewari, 2007; Enayati, Grann, Lubbe, & Fazel, 2008; Hollin et al., 2013; Jayaraman & Frazer, 2006).

Individuals in forensic mental health services present with a range of both clinical and criminogenic needs (Nagi & Davies, 2010). Thus, it cannot be assumed that interventions effective in reducing risk-related psychological vulnerabilities with prisoners are equally effective with mentally disordered offenders. Unfortunately, little attention has been given in the forensic mental health literature to examining the effectiveness of forensic interventions which have been adapted to meet the specific needs of mentally disordered offenders (Barnao & Ward, 2015; Davies, Howells, & Jones, 2007; Grubin, 2001; Howells, Day, & Thomas-Peter, 2004). The current study aims to evaluate the effectiveness of the Firesetting Intervention Programme for Mentally Disordered Offenders (FIP-MO); a specialist intervention developed specifically for male and female mentally disordered offenders who hold a history of deliberate firesetting.

The Firesetting Intervention Programme for Mentally Disordered Offenders (FIP-MO).

The Firesetting Intervention Programme for Mentally Disordered Offenders (FIP-MO) is a new semi-structured manualised intervention developed by Gannon and Lockerbie (2011; 2012; 2014) for use with both male and female patients with a history of deliberate firesetting and/or fire-related risk behaviours¹. The programme was developed as a ‘sister’ programme to the FIPP to address the clinical need in forensic mental health services. The FIP-MO was initially developed and piloted with a group of male patients in 2010 at a medium secure unit in the UK and was then rolled out across UK secure forensic psychiatric hospitals. In terms of structure, the FIP-MO consists of 28 weekly two-hour group sessions

¹ When referring to participants in the current study we use ‘firesetter’ to describe individuals who meet the referral criteria for the FIP-MO, regardless of whether they set a fire or engaged in fire-related risk behaviours.

and accompanying hourly individual sessions. Group sessions are generally delivered by two facilitators; a Health and Care Professions Council UK Registered Professional (e.g., clinical/forensic psychologist) and a multi-disciplinary team member (i.e., assistant psychologist, occupational therapist, nursing staff). Individual sessions are delivered by any of the facilitators involved in programme delivery. All facilitators are provided with standardised training from the FIP-MO developers on the programme structure and delivery, and the empirical and theoretical literature on firesetting and offender rehabilitation. An overview of FIP-MO session content is presented in Table 1.

The programme was developed from an extensive review of the existing empirical and theoretical literature on firesetting (Gannon & Pina, 2010; Tyler & Gannon, 2012), incorporating elements of leading theories of rehabilitation and firesetting (i.e., the Risk Need Responsivity Model, Andrews & Bonta, 2010; the Good Lives Model, Ward & Stewart, 2003; and the Multi-Trajectory Theory of Adult Firesetting, Gannon et al., 2012). The FIP-MO adopts a cognitive behavioural therapy (CBT) approach to treatment and contains strong psychotherapeutic elements to promote a positive therapeutic relationship, emotional and social expression, and self-reflection (Gannon & Lockerbie, 2011; 2012; 2014). The FIP-MO focuses on five key areas: fire-related factors (i.e., problematic fire interest and associations with fire), offence supportive attitudes, social competency, self-management/coping skills, and traditional risk management (i.e., understanding the factors associated with firesetting and developing a personalised risk management plan).

Patients engage in reflective work to help them understand the factors associated with their firesetting; preparing accounts of their treatment needs, childhood experiences, and the factors leading up to their firesetting for group discussion. The FIP-MO emphasises skills development throughout the programme for each of the five areas of treatment need. For

example, patients are encouraged to practice new skills via role plays in the group, individual sessions, and naturalistically on the ward.

[Insert Table 1 about here]

The current study aimed to evaluate the effectiveness of the FIP-MO when rolled out across multiple secure forensic psychiatric services in the UK. More specifically, it aimed to examine whether mentally disordered firesetters who attended the FIP-MO made improvements on the treatment areas of interest in comparison to a group of mentally disordered firesetters who received Treatment as Usual (TAU). This study is the first to rigorously evaluate the effectiveness of a firesetting intervention programme with mentally disordered offenders incorporating a TAU comparison group. Further, it is the first to examine the effectiveness of a specialist firesetting intervention with a sample of both male and female patients. Since there has been little research to date that has specifically examined mentally disordered firesetters' treatment needs, it is hypothesised that firesetters who complete the FIP-MO specialist treatment programme will show improvements relative to the comparison group on all areas of treatment need targeted by the FIP-MO and tested by our psychometric measures.

Method

Design

This study adopted a quasi-experimental design to examine the FIP-MO effectiveness (treatment group) in comparison to treatment as usual (TAU; comparison group). The study ran over a 48-month period between March 2012 and March 2016 across 26 low, medium, and high secure UK forensic psychiatric services (12 treatment sites and 14 comparison sites). A total of 16 FIP-MO groups were implemented during this period.

For the treatment group, patients were referred to the FIP-MO programme by their clinical team if they (1) had a history of repeat firesetting or were identified as posing a

possible risk of firesetting or engaging in fire-related risk behaviours, and (2) were considered to have the cognitive and mental capacity to complete the FIP-MO. Patients were not required to have actually set a fire to be eligible for the FIP-MO. For example, individuals with a history of engaging in fire-related risk behaviours were eligible to be referred to the FIP-MO (e.g., they could have a history of attempted firesetting, fire threats, or making incendiary devices). Further, participants did not need to admit their firesetting to participate in the FIP-MO. Patients were treated in all-male or all-female groups and, as part of standard treatment, were assessed pre and post treatment using a standardised battery of psychometrics.

Patients in the comparison group were identified by their clinical teams based on the same inclusion criteria as the treatment group. Participants in the comparison group did not attend the FIP-MO but were asked to complete the same battery of psychometrics as FIP-MO clients (i.e., at two similar time points with an approximate 28 week interval). Comparison participants were not prohibited from engaging in any treatment and thus engaged in a variety of therapeutic interventions as usual (e.g., anger management, occupational therapy, psychoeducation for mental illness/personality disorder, substance use treatment, dialectical behavioural therapy).

Participants

The initial sample consisted of 135 mentally disordered firesetters (male = 84, female = 51) recruited across 26 low, medium, and high secure adult inpatient UK forensic mental health services. Of these, 63 patients (40 male, 23 female) were treatment participants and 72 comparison participants (44 male, 28 female). All had a current diagnosed mental disorder, were subject to treatment under the England and Wales Mental Health Act (1983/2007), and held at least one recorded incident of firesetting, attempted firesetting, or inappropriate fire-related behaviour. Eight patients in the treatment group, who completed the FIP-MO,

declined to participate in the research. Further, incomplete data were returned for three treatment participants so these were removed for analysis. Fifteen comparison participants were discharged or transferred prior to study completion and so their data were removed from the study. A further 16 comparison participants withdrew from the study after consenting to participate and one comparison participant lost the mental capacity to provide informed consent partway and so was withdrawn from the study (see Figure 1 for an overview of participant study flow). Thus, 92 participants (52 treatment and 40 comparison) were included in the final sample. Participants' ages ranged from 20 to 69 years ($M = 35.31$, $SD = 11.17$) and the majority identified themselves as White British (83.7%, $n = 77$). Demographic characteristics for the sample can be found in Table 2.

[Insert Table 2 about here]

The treatment group ($n = 52$; 34 male, 18 female) were all treated in same sex programmes, with programme sizes ranging from 3–8 patients. Participants' ages ranged from 21 to 57 years ($M = 36.56$, $SD = 10.74$). The comparison group ($n = 40$; 26 male, 14 female) ranged in age from 20 to 69 years ($M = 34.00$, $SD = 11.97$). A series of t-test and chi-square analyses indicated that the groups did not significantly differ on the majority of demographic variables (e.g., current age, age of first contact with mental health services, current length of stay, age of first conviction, number of previous convictions, age of first firesetting, total number of adult firesetting incidents, number of unconvicted firesetting incidents, number of fires set in hospital, number of fires set in prison, or number of juvenile firesetting incidents; see Table 2). However, the treatment group did hold significantly more

previous hospital admissions, $t(72.26) = -2.42$, $p = .018$, $d = 0.51$, and convictions for firesetting offences than the comparison group, $t(80) = -3.21$, $p = .002$ $d = 0.72$.²

[Insert Figure 1 here]

Measures

Demographic, psychiatric, offence history, and background information were obtained from clinical file review for participants in both the treatment and comparison groups. In addition to this, participants in both the treatment and the comparison groups completed a battery of ten standardised psychometric measures which were selected to tap into the key treatment areas targeted as part of the FIP-MO. These were completed as part of treatment by those in the treatment group and for research purposes by the comparison group. Where possible, simplified or shortened versions of measures were selected to minimise respondent fatigue. Measures were administered in a randomised order. Internal reliability for each of the measures was calculated using Cronbach's alpha (α) or the Kuder-Richardson Formula 20 (KR20). In the following section, internal reliability is reported according to the following criteria by George and Mallery (2003): $\geq .90$ excellent, $.89$ to $\geq .80$ good, $.79$ to $\geq .70$ acceptable, and $.69$ to $.60$ questionable.

Self-deception and impression management.

The Paulhus Deception Scales (Paulhus, 1998) is a 40-item self-report measure of social desirability rated on a 5-point scale (1 = not true, 5 = very true). The measure is subdivided into two subscales: the Impression Management Scale (IM) and the Self Deceptive

² When these variables were controlled for no difference in results were detected, with the exception of serious fire interest and fire safety awareness where the interaction effects for these variables reached significance. However, the magnitude of the effect sizes remained consistent across all measures. Thus, the unadjusted results are reported for this study."

Enhancement Scale (SD). The IM subscale measures intentional faking good responses (e.g., “I never swear”) and the SD subscale measures positive unconscious self-adjustment (e.g., “I never regret my decisions”). The Paulhus Deception Scales have well established psychometric properties with offending populations (Paulhus, 1998). In the current study, the IM subscale showed acceptable reliability ($\alpha = .71$), however the SD subscale showed poor reliability ($\alpha = .50$) and so was not included in the main analysis.

Fire-related measures.

Three fire-related measures were included in the battery of psychometrics, the Fire Interest Rating Scale (Murphy & Clare, 1996), the Fire Attitude Scale (Muckley, 1997), and the Identification with Fire Questionnaire (Gannon, Ó Ciardha, & Barnoux, 2011). The Fire Interest Rating Scale (Murphy & Clare, 1996) examines fire interest and consists of 14 situational statements (e.g., “Watching a house burn down”). Participants are asked to rate how interested they would be in each of the situations on a scale of 1 – ‘upsetting/frightening’ to 7 – ‘exciting, fun, or lovely’. The Fire Attitude Scale (Muckley, 1997) examines individuals’ attitudes towards fire and consists of 19 items answered on a scale from 1 – ‘Strongly Disagree’ to 5 – ‘Strongly Agree’ (e.g., “Setting just a small fire can make you feel a lot better”). The Identification with Fire Questionnaire (Gannon, Ó Ciardha, & Barnoux, 2011) assesses the extent to which an individual relates to/identifies with fire and consists of 17 items answered on a scale from 1 – ‘Strongly Disagree’ to 5 – ‘Strongly Agree’ (e.g., “Fire is almost part of my personality”).

Consistent with recent research, these three fire-related measures were conceptualised as Four Factors (Ó Ciardha et al., 2014; Ó Ciardha, Tyler, & Gannon, 2016). Ó Ciardha and colleagues conducted a factor analysis of the items included in these measures and identified four subscales which provide a conceptually and clinically meaningful way of interpreting the

results of these measures. The four subscales examine (1) identification with fire (“Fire is an important part of my identity”; 11 items), (2) serious fire interest (“Watching a person with his clothes on fire”; 7 items), (3) perceived fire safety awareness (“I know a lot about how to prevent fires”; 6 items), and (4) firesetting as normal (“Most people’s friends have lit a fire or two”; 7 items). Ó Ciardha et al. (2016) also developed a total Fire Factor score which is an overall composite score of the subscales and represents an individual’s overall interest and affiliation with fire, attitudes towards fire, and perceived fire safety awareness. The authors report questionable to good psychometric properties for the majority of the scales (identification with fire $\alpha = .88$, serious fire interest $\alpha = .86$, perceived fire safety awareness $\alpha = .68$, normalisation of firesetting $\alpha = .73$; Gannon et al., 2013) and excellent reliability for the total Fire Factor score ($\alpha = .90$). The current study also found questionable to excellent reliability for these scales (identification with fire $\alpha = .95$, serious fire interest $\alpha = .90$, perceived fire safety awareness $\alpha = .64$, normalisation of firesetting $\alpha = .80$). We also found excellent overall reliability for the total Fire Factor Score ($\alpha = .92$).

Other measures.

Self-Management/Coping Measures. The State Trait Anger Expression Inventory – 2 (STAXI-2; Spielberger, 1999) is a 57-item self-report measure examining the experience and expression of anger. The STAXI-2 consists of 4 scales which measure the intensity of anger as an emotional state (i.e., “I feel angry”), the frequency of angry feelings over time (i.e., “I am a hot headed person”), the expression of angry feelings towards others and objects (i.e., “I strike out at whatever infuriates me”), and the control of expression of angry feelings (i.e., “I control my angry feelings”). An Anger Expression Index Score can be computed using the scores from the anger control and anger expression subscales which provides a general indication of a person’s anger expression. Responses are rated on a 4-point scale (1 - not at all

to 4 - always). Spielberger (1999) reports good psychometric properties overall for the STAXI-2 for both psychiatric ($\alpha = .87$) and non-psychiatric adults ($\alpha = .84$ to $.86$). We found similar psychometric properties for this measure ($\alpha = .85$).

The Nowicki-Strickland Locus of Control (Nowicki, 1976) is a 40-item self-report forced choice (yes/no) measure of an individual's extent of their belief as to whether events are internally or externally controlled (e.g., "Do you believe that you can stop yourself from catching a cold?"). The measure has been normed with a male imprisoned firesetter population (Gannon et al., 2013) and acceptable rates of reliability have been reported (KR20 = $.73$). We found questionable reliability for this measure (KR20 = $.69$).

Social Competency Measures. The Revised UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980) is a self-report measure of emotional loneliness. Participants rate 20 statements (e.g., "There is no one I can turn to") on a 4-point scale (1 = never to 4 = often). Research with male imprisoned firesetters has reported good psychometric properties ($\alpha = .86$; Gannon et al., 2013). In the current study reliability was found to be good ($\alpha = .87$).

The Simple Rathus Assertiveness Schedule—Short Form (Jenerette & Dixon, 2010) is a simplified 19-item self-report measure of assertiveness (e.g., "To be honest, people often get the better of me") rated on a 6-point scale (1 = very much unlike me to 6 = very much like me). The authors of the measure report good measure reliability as do researchers who have used this measure with imprisoned male firesetters ($\alpha = .80$; Jenerette & Dixon, 2010; Gannon et al., 2013). Reliability was acceptable in the current study ($\alpha = .72$).

Self-concept Measures. The Culture-Free Self-Esteem Inventory (Battle, 1992) is a 40-item forced choice (yes/no) self-report measure of adult self-esteem. The measure consists of four subscales that measure general self-esteem (overall perception of self-worth; i.e., "Are you happy most of the time?"), personal self-esteem (internal perception of self-worth; i.e., "Do you feel that you are as important as most people?"), and social self-esteem (perception

of quality of relationships with others; i.e., “Do you have many friends?”). The psychometric properties of this measure are well established (see Battle, 1997) and show good internal consistency with male imprisoned firesetters (KR20 = .86; Gannon et al., 2013). In the current study, however, internal reliability was lower than in previous studies, ranging from questionable to acceptable across the subscales (general self-esteem KR20 = .76; personal self-esteem KR20 = .62; social self-esteem KR20 = .72).

Offence-Supportive Attitude Measures. The Measure of Criminal Attitudes and Associates-Part B (MCAA-Part B; Mills & Kroner, 1999) is a 46 item self-report measure of antisocial attitudes which is answered using a forced choice (agree/disagree) response format. The MCAA-Part B consists of four subscales which examine the extent to which individuals hold attitudes that endorse (a) violence (“Someone who makes you very angry deserves to be hit”), (b) sentiments of entitlement (“Only I can decide what is right and wrong”), (c) antisocial intent (“For a good reason I would commit a crime”), and (d) criminal associates (“I have friends who have been to jail”). The psychometric properties of the MCAA are well established with incarcerated offender populations (see Mills, Kroner, & Forth, 2002; Mills, Kroner, & Hemmati, 2004) and research with male imprisoned firesetters has found acceptable to good reliability (Cronbach’s alphas .72 to .88, Gannon et al., 2013). In the current study the MCAA also showed acceptable to good reliability (Violence KR20 = .89; Entitlement KR20 = .73; Antisocial Intent KR20 = .80; Criminal Associates KR20 = .82).

Service user satisfaction.

Following FIP-MO completion, all participants in the treatment group were asked to complete a post-treatment evaluation form to capture views on their satisfaction with treatment. Participants answered questions about each aspect of the FIP-MO (see Table 4)

and were asked to rate how important they felt each aspect was to their progress and recovery using a 5 point scale (1 = definitely not, 5 = definitely yes).

Procedure

The study was reviewed and approved ethically by the University's Research Ethics Committee (Ref: 20111937) and London Dulwich National Health Service Research Ethics Committee (Ref: 11/LO/2017). Sites who expressed an interest in running the FIP-MO, had a current clinical need for a firesetting programme, and who were also logistically able to run the FIP-MO (i.e., had sufficient staffing arrangements) participated as treatment sites. Those sites who had expressed an interest but were unable to run a FIP-MO group, either due to clinical or staffing restrictions (e.g., not having enough patients who met the referral criteria to run a firesetting group programme), but who had patients who would benefit from attending a FIP-MO group in the future participated in the research as comparison (TAU) sites.

Participants in both the treatment and the comparison group completed the psychometrics at both time points on an individual basis with either a local researcher or the first author. Information on demographic, background, psychiatric, and offence histories was collected for each participant from file information by the Principle Investigators at each site. Participants in the treatment group were also asked to complete post-programme evaluation forms to obtain feedback on the programme.

Results

No significant differences were detected at baseline between the treatment and comparison groups on the fire-related measures or other measures, with the exception of the MCAA Violence and Entitlement subscales where the comparison group self-reported

significantly higher levels of violent supportive attitudes, $t(73.77) = 2.13$, $p = .037$, $d = 0.46$, and entitlement to offend, $t(90) = 2.45$, $p = .016$, $d = 0.52$, compared to the treatment group³. Thus, the treatment and comparison groups were relatively well matched in terms of their treatment needs. In terms of impression management, no significant differences were detected at baseline between the treatment and comparison group, $t(88) = .35$, $p = .727$, $d = 0.08$. Further, there was no significant Group x Time interaction for impression management, $F(1,87) = 2.69$, $p = .105$, $\eta^2_p = .03$. Thus, the following analyses have not been adjusted for effects of impression management.

Mixed ANOVA's were conducted on the fire-related and other outcome measures with group (Treatment vs. Comparison) as the between subjects variable and time (Time 1 vs. Time 2) as the within subjects variable⁴. Within-subjects effect sizes (Cohen's d_z) were calculated using Lakens (2013) spreadsheet for all measures, to demonstrate the size of the effect pre-post treatment for both the treatment group and the comparison group. Effect sizes were considered using Cohen's (1988) criteria where $d_z = 0.10$ is considered a 'small' effect, $d_z = 0.25$ is considered a 'medium' effect, and $d_z = 0.40$ is considered a 'large' effect.

Fire-Related Measures

Fire factor scales. No significant Group x Time interactions were detected for any of the individual subscales on the Four Factor Fire Scale. However, a significant Group x Time interaction was detected for the total Fire Factor score, $F(1,87) = 4.03$, $p = .048$, $\eta^2_p = .04$, indicating that, at Time 2, firesetters who completed the specialist FIP-MO showed a

³ No noteworthy differences in the results were found when analyses were adjusted to control for the baseline scores for violence supportive attitudes or entitlement to offend. Thus, the unadjusted results for these variables are reported.

⁴ Gender was initially considered as a factor within the analysis, however, no interactions involving gender were detected for any of the outcome measures. Thus, gender was not included as a factor in the main analysis.

significant decrease in their overall self-reported attitudes and associations with fire compared to those firesetters who simply received TAU. Further, within-group effect size calculations showed medium to large effect sizes pre-post treatment for the treatment group on the Identification with Fire subscale ($d_z = 0.36$), Serious Fire Interest subscale ($d_z = 0.27$), Fire Safety Awareness subscale ($d_z = 0.41$), and on the total Fire Factor score ($d_z = 0.40$). No discernible improvements were detected for the comparison group on any of the scales (all $d_z \leq .05$), with the exception of Serious Fire Interest, where the comparison group demonstrated a small effect size shift in the opposite direction (See Table 3).

Other Measures

Self-management/coping measures. No significant Group x Time interactions were detected for the STAXI State Anger subscale, $F(1,83) = 1.05$, $p = .309$, $\eta^2_p = .01$, or the STAXI Trait Anger subscale, $F(1,83) = 2.10$, $p = .151$, $\eta^2_p = .03$. However, a medium within-groups effect size was detected pre-post treatment for the treatment group for the STAXI State Anger subscale ($d_z = 0.32$) and a small to medium effect size for the Trait Anger subscale ($d_z = 0.21$), whereas no discernible shifts were detected for the comparison group on either subscale (State Anger, $d_z = 0.03$ Trait Anger, $d_z = 0.16$). On the STAXI Anger Index subscale a significant Group x Time interaction was detected, $F(1,86) = 10.69$, $p = .002$, $\eta^2_p = .11$, indicating that, at Time 2, firesetters who completed the FIP-MO treatment group significantly improved their self-reported ability to express their anger compared to those in the TAU comparison group. Within-group effect size calculations showed a large effect size shift on the STAXI Anger Index for the treatment group pre-post treatment ($d_z = 0.49$), whilst the comparison group demonstrated a small effect size shift in the opposite direction ($d_z = 0.21$). No Group x Time interactions were detected for Locus of Control, $F(1,86) = .63$, $p = .429$, $\eta^2_p = .01$. However, a small to medium within-group effect size was detected for the

treatment group in terms of reporting a more externalised locus of control post-treatment ($d_z = 0.22$), whereas the comparison group did not show any shift ($d_z = 0.04$).

Social competency. No Group x Time interactions were detected for Emotional Loneliness $F(1, 87) = .78, p = .379, \eta^2_p = .01$, or Assertiveness $F(1,87) = .05, p = .825, \eta^2_p = .00$, indicating that there was no difference between the treatment group and the TAU comparison group on their self-reported levels of emotional loneliness or assertiveness at Time 2. However, within-group effect size calculations showed a small effect size shift on the Emotional Loneliness Scale for the treatment group pre-post treatment ($d_z = 0.16$), whereas the comparison group showed no discernible shift on this measure ($d_z = 0.05$).

Self-concept. No Group x Time interactions were detected for General Self-esteem, $F(1, 89) = 1.74, p = .190, \eta^2_p = .02$, Social Self-esteem, $F(1, 89) = 2.19, p = .143, \eta^2_p = .02$, or Personal Self-esteem, $F(1, 89) = .94, p = .336, \eta^2_p = .01$. However, a significant main effect of time was found for Personal Self Esteem ($p = .01$). Thus, firefighters' Personal Self-esteem appeared to increase regardless of intervention. However, mean score increases were slightly larger for the treatment group than the comparison group (see Table 3). Although no significant interactions were detected on the self-concept measures, within-group effect sizes for the treatment group were generally medium in size (General Self-esteem $d_z = 0.27$; Social Self-esteem $d_z = 0.22$; Personal Self-esteem $d_z = 0.38$), whereas the control group showed no discernible shifts (General Self-esteem $d_z = 0.01$; Social Self-esteem $d_z = 0.09$; Personal Self-esteem $d_z = 0.17$),

Offence supportive attitudes. No Group x Time interactions were detected for MCAA Violence, $F(1,89) = .15, p = .700, \eta^2_p = .00$, MCAA Entitlement, $F(1,89) = 1.41, p = .238, \eta^2_p = .02$, MCAA Antisocial, $F(1,89) = 2.48, p = .119, \eta^2_p = .03$, or MCAA Associates, $F(1, 89) = .75, p = .387, \eta^2_p = .01$, indicating that there was no difference between the treatment group and the TAU comparison group on levels of offence supportive attitudes

at Time 2. Although no significant interactions were detected on the offence supportive attitudes measures, a small-medium effect size shift was detected for the treatment group on the MCAA Antisocial subscale in terms of reporting a reduction in their antisocial attitudes post-treatment ($d_z = 0.20$), whereas the comparison group showed a small effect size shift on the MCAA Antisocial subscale in the opposite direction ($d_z = 0.14$).

[Insert Table 3 about here]

Service User's Satisfaction with the FIP-MO

Post-group evaluation forms were returned from participating treatment sites for 26 participants (50%; males = 18, females = 7). Four services either did not complete or return completed post-group evaluation forms for their participants. Participants in the treatment group generally reported feeling that they benefitted from attending the FIP-MO group (76.9%). They also reported that they found the individual sessions, which ran alongside the main group sessions, to be helpful (92.3%). Further, the majority of participants reported that they felt the content most important to them and their recovery was the following: understanding about fires and how they spread (80.8%), learning about the potential effects of fire on other people (84.6%), understanding my triggers and risk factors (80.8%), and learning about Good Lives and how to create a more satisfying life for myself (80.7%; see Table 4). In terms of the group process, participants reported that the most important part of the group process for their recovery was hearing other perspectives and viewpoints (80.8%).

[Insert Table 4 about here]

Discussion

This study evaluated a new specialist group intervention designed specifically to reduce the psychological factors associated with deliberate firesetting in male and female mentally disordered offenders (the FIP-MO; Gannon & Lockerbie, 2011; 2012; 2014). The

FIP-MO programme focusses on factors identified in the literature as being associated with deliberate firesetting including problematic interest and association with fire, fire safety awareness, social competency, self and emotional regulation, and offence supportive attitudes (fire specific and general offending). Our findings demonstrate, that compared to a comparison group of firesetters who did not receive specialist treatment, those who completed the FIP-MO demonstrated significant improvements on their self-reported interests, beliefs and attitudes about fire, as measured using the Fire Factor Scale (Ó Ciardha et al., 2016). Firesetters who completed the FIP-MO also reported a significant improvement in anger expression relative to the comparison group. Further, firesetters who completed the FIP-MO were found to make larger shifts pre-post treatment on the majority of treatment areas, whereas the comparison group did not make any positive discernible shifts. In addition, participants' experience of the FIP-MO was examined. Participants in the treatment group reported that they felt that attending the FIP-MO treatment was beneficial for them in terms of understanding their firesetting, the effects of fire, and fire safety awareness.

This study is the largest evaluation of specialist group treatment for male and female mentally disordered firesetters to date. It also adds to the limited evidence base of “what works” in terms of offence related treatment for mentally disordered offenders. The findings from our evaluation study show some similar outcomes to evaluations of specialist treatment with male prison populations (e.g., significant improvements on fire-related factors and anger expression; Gannon et al., 2015), highlighting that specialist group treatment is effective with both mentally disordered firesetters and imprisoned firesetters; particularly in reducing fire-related factors and anger expression.

An interest or fascination with fire is frequently cited in the literature as being an important risk factor for repeat firesetting (Doley, 2009; Ó Ciardha et al., 2016; Rice & Harris, 1991; Rice & Harris, 1996; Tyler, Gannon, Dickens, & Lockerbie, 2015). Thus, it is

encouraging that patients who completed the FIP-MO showed a statistically significant reduction in their pre-post treatment scores on the Fire Factor Scale relative to those in the comparison group, as this construct captures individuals' self-reported interests, attitudes, and beliefs about fire and fire safety practices. This finding suggests that the specific sessions within the FIP-MO aimed at targeting interest, attitudes and beliefs about fire and fire safety awareness were effective in reducing deficits in these areas for treatment participants. Further, anger has been reported in the literature as a common emotion experienced by firesetters (Barnoux, Ó Ciardha, & Gannon, 2015; Gannon et al., 2013; Green, Lowry, Pathé, & McVie, 2014; Tyler, Gannon, Lockerbie, King, Dickens, & De Burca, 2014) and aggressive motives are consistently reported as being highly prevalent for firesetting (Ritchie & Huff, 1999; Rix, 1994). Thus, it is encouraging that male and female firesetters who completed the FIP-MO showed significant improvements in their self-reported ability to express their anger relative to the comparison group.

Our findings also extended those of previous descriptive studies and small scale evaluations of specialist firesetting treatment conducted within forensic mental health settings (Hall, 1995; Swaffer et al., 2011; Taylor et al., 2002, 2006). For example, previous firesetting treatment evaluations (i.e., Taylor et al., 2002; 2006) have found statistically significant improvements pre-post treatment across a variety of both fire and non-fire variables (e.g., anger and self-esteem). However, magnitude of change (e.g., effect size) was not assessed and a comparison group was not used to examine the effectiveness of specialist treatment over standard treatment (i.e., treatment as usual).

The evaluation findings are very encouraging regarding the effectiveness of specialist treatment for male and female mentally disordered firesetters. A quasi-experimental evaluation design was adopted; such designs are considered stronger research paradigms for treatment evaluations, particularly if they include a control group (Eliopoulos, Harris,

Lautenbach, & Perencevich, 2005; Hollin, 2006). They are also useful for preliminary intervention evaluations where randomisation to treatment conditions is impractical and/or unethical (Hollin, 2008). Although a randomised control trial (RCT) offers an alternative design for minimising the effects of possible confounding variables, they appear to hold distinct problems when applied in forensic settings (Farrington et al., 2002; Gondolf, 2004). For example, withholding treatment from participants allocated to the comparison group could result in delays to their progression through the healthcare/criminal justice system resulting in legal action being taken by those participants (Friendship, Blud, Erikson, Travers, & Thornton, 2003). The comparison group in the current study were recruited from services who were not in a position to run a FIP-MO group due to clinical need or staffing restrictions but who had patients who would benefit from attending the FIP-MO in the future. Whilst this was not a matched comparison group, the recruitment process ensured that all participants were eligible for treatment or “treatment ready”, similar to a waiting list control group. Further, statistical examination of the two groups highlighted few significant differences between the treatment and comparison groups on pre-treatment scores indicating that the two groups were relatively well matched at baseline.

Treatment integrity has been suggested to be an important component for assessing the impact and effectiveness of an intervention (Perepletchikova & Kazdin, 2005). Two key components of treatment integrity are the competence of the therapist to deliver the intervention and the adherence to the treatment manual/protocol (Perepletchikova & Kazdin, 2005). All FIP-MO groups were led by a Health and Care Professions Council UK registered practitioner (e.g., qualified psychologist, psychiatrist, CBT therapist) and all facilitators were required to attend a full days training with the FIP-MO developers before implementing the programme. Further, all facilitators were offered continued support throughout delivering the FIP-MO via bi-monthly conference calls and contact with the programme developers.

Understanding the long term impact of the FIP-MO on behavioural change will be critical for future research. While our results show that the FIP-MO has brought about change on psychological factors associated with deliberate firesetting, a key question for future researchers is whether this translates to actual behavioural change. A longitudinal prospective reoffending study, including self-report, recorded incident, and reconviction data, would allow for examination of whether the FIP-MO is effective in inducing long term behavioural change and therefore whether it reduces an individual's risk of future fire misuse (Falshaw, Bates, Patel, Corbett, & Friendship, 2003).

Conclusions

This study is the first to examine the effectiveness of a specialist firesetting intervention programme with a sample of both male and female mentally disordered patients. The outcomes support the development and delivery of specialist firesetting interventions with mentally disordered offenders. Firesetters who attended the specialist FIP-MO treatment made gains post-intervention in the fire-related treatment areas (i.e., problematic interest and association with fire, fire safety awareness) and anger expression relative to a TAU comparison group. In other words, the FIP-MO treatment appeared effective for reducing key factors associated with deliberate firesetting in both male and female mentally disordered offenders relative to standard treatment as usual. This suggests that general offending behaviour programmes are not effective in addressing specific fire-related deficits in this population; illustrating that firesetters require specialist treatment.

References

- Andrews, D. A., & Bonta, J. (2010). *The psychology of criminal conduct* (5th ed.). New Providence, NJ: LexisNexis Matthew Bender.
- Barnao, M., & Ward, T. (2015). Sailing uncharted seas without a compass: A review of interventions in forensic mental health. *Aggression and Violent Behavior, 22*, 77-86. doi: 10.1016/j.avb.2015.04.009
- Barnoux, M., Gannon, T.A., & Ó Ciardha, C. (2015). A descriptive model of the offence chain for imprisoned adult male firesetters (descriptive model of adult male firesetting). *Legal and Criminological Psychology, 20*, 48-67. doi: 10.1111/lcrp.12071
- Battle, J. (1992). *Culture-free self-esteem inventories*. Austin, TX: Pro Education.
- Battle, J. (1997). Culture-free self –esteem inventories for children and adults. In C. P. Zalaquett, & R.J. Wood (Eds.). *Evaluating stress: A book of resources* (pp. 67-95). London: The Scarecrow Press, Inc.
- Campbell, R. (2017). *Intentional Fires*. National Fire Protection Association. Retrieved from <http://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/fire-causes/arson-and-juvenile-firesetting/intentional-fires>
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. New York, NY: Routledge Academic. pp. 48.
- Coid J., Kahtan, N., Gault, S., Cook, A., & Jarman, B. (2001). Medium secure forensic psychiatry services: Comparison of seven English health regions. *British Journal of Psychiatry, 178*, 55 – 61. doi: 10.1192/bjp.178.1.55

- Davies, J., Howells, K., & Jones, L. (2007). Evaluating innovative treatments in forensic mental health: A role for single case study methodology? *The Journal of Forensic Psychiatry and Psychology*, 18(3), 353-367. doi: 10.1080/14789940701443173
- Department for Communities and Local Government (2011). The economic costs of fire: Estimates for 2008. Fire research report 3/2011. Retrieved from http://www.stoparsonuk.org/documents/resources/Economic%20Cost%20of%20Fire%20Estimates%20for%202008%20%E2%80%93%20Fire%20Research%20Report%2032_011.pdf
- Dickens, G., Sugarman, P., Ahmad, F., Edgar, S., Hofberg, K., & Tewari, S. (2007). Gender differences amongst adult arsonists at psychiatric assessment. *Medicine, Science and the Law*, 47(3), 233-238. doi: 10.1258/rsmmsl.47.3.233
- Doley, R. (2009) A snapshot of serial arson in Australia. Saarbrücken: Lambert Academic Publishing.
- Doley, R., Dickens, G., & Gannon, T. A. (2015). *The psychology of arson*. London: Routledge.
- Doley, R., Fineman, K., Fritzon, K., Dolan, M., & McEwan, T. (2011). Risk factors for recidivistic arson in adult offenders. *Psychiatry, Psychology and Law*, 18 (3) 409-423. doi: 10.1080/13218719.2011.559155
- Eliopoulos, G.M., Harris, A.D., Lautenbach, E., & Perencevich, E. (2005). A systematic review of quasi-experimental study designs in the field of infection control and antibiotic resistance. *Clinical Infectious Diseases*, 41(1), 77-82. doi: 10.1086/430713

- Enayati, J., Grann, M., Lubbe, S., & Fazel, S. (2008). Psychiatric morbidity in arsonists referred for forensic assessment in Sweden. *The Journal of Forensic Psychiatry and Psychology*, 19, 2, 139 - 147. doi: 10.1080/14789940701789500
- Falshaw, L., Bates, A., Patel, V., Corbett, C., Friendship, C. (2003). Assessing reconviction, reoffending and recidivism in a sample of UK sexual offenders. *Legal and Criminological Psychology*, 8, 207-215. doi: 10.1348/135532503322362979
- Farrington, D.P., D.C. Gottfredson, L.W. Sherman and B.C. Welsh (2002) 'The Maryland Scientific Methods Scale', in L.W. Sherman, D.P. Farrington, B.C. Welsh and D.L. MacKenzie (eds) *Evidence-Based Crime Prevention*, pp. 3–21. London: Routledge.
- Fazel, S., & Grann, M. (2002). Older criminals a descriptive study of psychiatrically examined offenders in Sweden. *International Journal of Geriatric Psychiatry*, 17, 907-913. doi: 10.1002/gps.715
- Friendship, C., Blud, L., Erikson, M., Travers, R., & Thornton, D. (2003). Cognitive behavioural treatment for imprisoned offenders: An evaluation of HM Prison Services's cognitive skills programmes. *Legal and Criminological Psychology*, 8, 103-114. doi: 10.1348/135532503762871273
- Gannon, T. A. (2012). *The Firesetting Intervention Programme for Prisoners*. Unpublished Manual. CORE-FP: University of Kent.
- Gannon, T. A., & Lockerbie, L. (2011). *The Firesetting Intervention Programme for Mentally Disordered Offenders*. Unpublished Manual. CORE-FP: University of Kent/Kent Forensic Psychiatry Service.

- Gannon, T. A., & Lockerbie, L. (2012). The Firesetting Intervention Programme for Mentally Disordered Offenders. Unpublished Manual. CORE-FP: University of Kent/Kent Forensic Psychiatry Service.
- Gannon, T. A., & Lockerbie, L. (2014). Firesetting Intervention Programme for Mentally Disordered Offenders (FIP-MO) Version 2.0. CORE-FP, University of Kent and Kent Forensic Psychiatry Services, NHS.
- Gannon, T.A., Alleyne, E., Butler, H., Danby, H., Kapoor, A., Lovell, T., Mozova, K., Spruin, E., Tostevin, T., Tyler, N., & Ó Ciardha, C. (2015). Specialist group therapy for psychological factors associated with firesetting: Evidence of a treatment effect from a non-randomized trial with male prisoners. *Behaviour Research and Therapy*, 75, 42-51. doi: 10.1016/j.brat.2015.07.007
- Gannon, T. A., Ó Ciardha, C., & Barnoux, M. L. (2011). The identification with fire questionnaire. Unpublished manuscript, CORE-FP, School of Psychology, University of Kent, UK.
- Gannon, T. A., Ó Ciardha, C., Doley, R. M., & Alleyne, E. (2012). The Multi-Trajectory Theory of Adult Firesetting (M-TTAF). *Aggression and Violent Behavior*, 17(2), 107-121. doi:10.1016/j.avb.2011.08.001
- Gannon, T.A., Ó Ciardha, C., Barnoux, M.F.L., Tyler, N., Alleyne, E.K.A., & Mozova, K. (2013). Male imprisoned firesetters have different characteristics than other imprisoned offenders and require specialist treatment. *Psychiatry: Interpersonal and Biological Processes*, 76 (4) 349-364. doi: 10.1521/psyc.2013.76.4.349
- Gannon, T. A. & Pina, A. (2010). Firesetting: Psychopathology, theory and treatment. *Aggression and Violent Behavior*, 15, 224-238. doi: 10.1016/j.avb.2010.01.001

- Geller, J.L., & Bertsch, G. (1985). Fire-setting behaviour in the histories of a state hospital population. *American Journal of Psychiatry*, 142, 4, pp. 464-468.
- Geller, J.L., Fisher, W.H., & Moynihan, K. (1992). Adult lifetime prevalence of firesetting behaviours in a state hospital population. *Psychiatric Quarterly*, 63, 2, 129 – 142. doi: 10.1007/BF01065986
- George, D., & Mallery, P. (2003). *SPSS for windows step by step: A simple guide and reference 11.0 update (4th ed.)*. Boston, MA: Allyn and Bacon.
- Gondolf, E.W. (2004). Evaluating Batterer Counselling Programs: A Difficult Task Showing Some Effects and Implications. *Aggression and Violent Behaviour*, (6): 605–31. doi: 10.1016/j.avb.2003.06.001
- Green, B., Lowry, T.J., Pathé, M., & McVie, N. (2015). Firesetting patterns, symptoms and motivations of insanity acquittees charged with arson offences. *Psychiatry, Psychology and Law*, 21(6), 937-946. doi: 10.1080/13218719.2014.918080
- Grubin, D. (2001) 'Editorial: Treatment for Mentally Disordered Offenders'. *Criminal Behaviour and Mental Health*, 11(1), 109– 112. doi: 10.1002/cbm.458
- Haines, S., Lambie, I., & Seymour, F. (2006). International approaches to reducing deliberately lit fires: Prevention programmes, final report. New Zealand Fire Service Commission research report, Vol. 63. Retrieved from http://sos.strateja-xl.com/professional-information/Articles/New_Zealand_Report_2.pdf
- Hall, G. (1995). Using group work to understand arsonists. *Nursing Standard*, 9(25), 25-28.
- Hollin, C.R. (2006). Offending behaviour programmes and contention: evidence-based practice, manuals, and programme evaluation. In C.R. Hollin, & E.J. Palmer

- (eds). *Offending Behaviour Programmes: Development, Application and Controversies* (pp. 33-68). Chichester: Wiley-Blackwell.
- Hollin, C.R. (2008). Evaluating offending behaviour programmes: Does only randomisation glister? *Criminology & Criminal Justice*, 8 (1), 89-106. doi: 10.1177/1748895807085871
- Hollin, C.R., Davies, S., Duggan, C., Huband, N., McCarthy, L., & Clarke, M. (2013). Patients with a history of arson admitted to medium security: characteristics on admission and follow-up post discharge. *Medicine, Science and the Law*, 53(3), 154-160. doi: 10.1258/msl.2012.012056
- Home Office (2017). *Fire Statistics: Deliberate fires attended*. Retrieved from <https://www.gov.uk/government/statistical-data-sets/fire-statistics-data-tables#deliberate-fires>
- Howells, K., Day, A., & Thomas-Peter, B. (2004). Changing violent behaviour: Forensic mental health and criminological models compared. *Journal of Forensic Psychiatry and Psychology*, 15(3), 391-406. doi: 10.1080/14788940410001655907
- Jayaraman, A., & Frazer, J. (2006). Arson: A growing inferno. *Medicine, Science and the Law*, 46(4), 295-300. doi: 10.1258/rsmmsl.46.4.295
- Jenerette, C. & Dixon, J. (2010). Developing a short form of the Simple Rathus Assertiveness Schedule using a sample of adults with sickle cell disease. *Journal of Transcultural Nursing*, 21, 4, 314-324. doi: 10.1177/1043659609360712

- Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, 4, 863, 1-12. doi: 10.3389/fpsyg.2013.00863
- Long, C., Fitzgerald, K-A., & Hollin, C.R. (2015). Women firesetters admitted to secure psychiatric services: Characteristics and treatment needs. *Victims and Offenders*, 10, 341-353. doi: 10.1080/15564886.2014.967901
- Mills, J. F., & Kroner, D. G. (1999). *Measures of Criminal Attitudes and Associates: User Guide*. Unpublished instrument and user guide.
- Mills, J. F., Kroner, D. G., & Forth, A. E. (2002). Measures of Criminal Attitudes and Associates (MCAA): Development, Factor Structure, Reliability, and Validity. *Assessment*, 9 (3), 240-253. doi: 10.1177/1073191102009003003
- Mills, J. F., Kroner, D. G., & Hemmati, T. (2004). The Measures of Criminal Attitudes and Associates (MCAA). *Criminal Justice and Behavior*, 31 (6), 717-733. doi: 10.1177/0093854804268755
- Muckley, A. (1997). *Firesetting: Addressing offending behaviour, a resource and training manual*. Redcar and Cleveland Psychological Service.
- Murphy, G. H., & Clare, I. C. H. (1996). Analysis of motivation in people with mild learning disabilities (mental handicap) who set fires. *Psychology, Crime & Law*, 2(3), 153-164. doi: 10.1080/10683169608409774
- Nagi, C. & Davies, J. (2010). Addressing offending risk in low secure mental health services for men: a descriptive review of available evidence. *The British Journal of Forensic Practice*, 12(1), 38-47. doi:10.5042/bjfp.2010.0037

- Nowicki, S. (1976). The factor structure of locus of control in children. *Journal of Genetic Psychology*, 129, 13-17. doi: 10.1080/00221325.1976.10534005
- Office of the Deputy Prime Minister (2006). *The economic costs of fire: Estimates for 2004 April*. London: Office of the Deputy Prime Minister.
- Ó Ciardha, C., Barnoux, M.F.L., Alleyne, E.K.A., Tyler, N., Mozova, K., & Gannon, T.A. (2014). Multiple factors in the assessment of firesetters' fire interest and attitudes. *Legal and Criminological Psychology*, 20, 37-47.
- Ó Ciardha, C., Tyler, N., & Gannon, T.A. (2016). A Practical Guide to Assessing Adult Firesetters' Fire-Specific Treatment Needs Using the Fire Factor Scales. *Psychiatry: Interpersonal and Biological Processes*, 78 (4), 293-304.
- Palmer, E. J., Caulfield, L. S., & Hollin, C. R. (2007). Interventions with arsonists and young fire setters: A survey of the national picture in England and Wales. *Legal and Criminological Psychology*, 12(1), 101-116. doi: 10.1348/135532505x85927
- Paulhus, D. L. (1998). *Manual for the Paulhus Deception Scales: BIDR Version 7*. Toronto: Multi-Health Systems.
- Perepletchikova, F., & Kazdin, A.E. (2005). Treatment integrity and therapeutic change: Issues and research recommendations. *Clinical Psychology: Science and Practice*, 12(4), 365-383. doi: doi:10.1093/clipsy/bpi045
- Repo, E., Virkkunen, M., Rawlings, R., & Linnoila, M. (1997). Criminal and psychiatric histories of Finnish arsonists. *Acta Psychiatrica Scandinavia*, 95, 318 – 323. doi: 10.1111/j.1600-0447.1997.tb09638.x

- Rice, M.E., & Harris, G.T. (1991). Firesetters admitted to a maximum security psychiatric institution. *Journal of Interpersonal Violence*, 6, 461-475. doi: 10.1177/088626091006004005
- Rice, M.E., & Harris, G.T. (1996). Predicting the recidivism of mentally disordered firesetters. *Journal of Interpersonal Violence*, 11, 3, 364 - 375. doi: 10.1177/088626096011003004
- Ritchie, E.C., & Huff, T.G. (1999). Psychiatric aspects of arsonists. *Journal of Forensic Science*, 44, 4, 733-740.
- Rix, K.J.B. (1994). A psychiatric study of adult arsonists. *Medicine, Science and the Law*, 34, 21-24. doi: 10.1177/002580249403400104
- Russell, D., Peplau, L. A., & Cutrona, C. A. (1980). The revised UCLA loneliness scale: Concurrent and discriminant validity evidence. *Journal of Personality and Social Psychology*, 39, 472-480.
- Smith, R.G., Jorna, P., Sweeney, J., & Fuller, G. (2014). Counting the costs of crime in Australia: A 2011 estimate. Australian Institute of Criminology: Research and public Policy Series 129. Canberra. Retrieved from http://www.aic.gov.au/media_library/publications/rpp/129/rpp129.pdf
- Speilberger, C. D. (1999). *STAXI-2: State-Trait Anger Expression Inventory-2*, Professional manual. Odessa, FL: Psychological Assessment Resources.
- Swaffer, T., Haggett, M., & Oxley, T. (2001). Mentally disordered firesetters: a structured intervention program. *Clinical Psychology and Psychotherapy*, 8, 468-475. doi: 10.1002/cpp.299 .

- Taylor, J.L., Thorne, I., Robertson, A. and Avery, G. (2002). Evaluation of a group intervention for convicted arsonists with mild and borderline intellectual disabilities, *Criminal Behavior and Mental Health*, 12, 282-293. doi: 10.1002/cbm.506
- Taylor, J.L., Robertson, A., Thorne, I., Belshaw, T., & Watson, A. (2006). Responses of female fire-setters with mild and borderline intellectual disabilities to a group intervention. *Journal of Applied Research in Intellectual Disabilities*, 19(2), 179-190. doi: 10.1111/j.1468-3148.2005.00260.x
- Tyler, N., & Gannon, T.A. (2012). Explanations of firesetting in mentally disordered offenders: A review of the literature. *Psychiatry: Interpersonal and Biological Processes*, 75, 2, 149 – 165. doi: 10.1521/psyc.2012.75.2.150
- Tyler, N., Gannon, T.A., Dickens, G.L., & Lockerbie, L. (2015). Characteristics that predict firesetting in male and female mentally disordered offenders. *Psychology, Crime and Law*, 21 (8), 776-797. doi: 10.1080/1068316X.2015.1054382
- Tyler, N., Gannon, T.A., Lockerbie, L., King, T., Dickens, G., & De Burca, C. (2014). A firesetting offence chain for mentally disordered offenders. *Criminal Justice and Behavior*, 41(4) 512-530. doi: 10.1177/0093854813510911
- Walker, A., Kershaw, C., & Nicholas, S. (2006). *Crime in England and Wales 2005/06*. Home Office Statistical Bulletin 12/06. London: Home Office.
- Ward, T., & Stewart, C. (2003). The relationship between human needs and criminogenic needs. *Psychology, Crime, & Law*, 9, 219-224. doi: 10.1080/1068316031000112557

Table 1: Overview of Group Session Content within the FIP-MO

Sessions 1-2: Group Establishment

- Introduction of facilitators and group members.
- Outline of the structure, content, and format of the FIP-MO.
- Establishing group etiquette (i.e., group contract, giving and receiving feedback).
- Understanding group members' hopes and fears about treatment.

Session 3: Introduction to the Good Lives Model

- Introduction to the Good Lives Model (i.e., what it is and what leading a 'good life' means).
- Introduction to goal setting using the Good Lives Model.
- Examination of patients' lives using the Good Lives Model around the time of their firesetting and at present in hospital.

Sessions 4-5: Treatment Targets

- Introduction to the key risk factors for deliberate firesetting.
- Patients identify their own treatment needs for their firesetting.
- Patients make links between their treatment needs and their Good Lives at the time of their firesetting.

Sessions 6-8: Understanding my Firesetting

- Patients prepare an account of their childhood experiences and present this to the group.
- Patients prepare an account of the period leading up to their firesetting and present this to the group.

Sessions 9-10: Managing Fire Interest/Preference for Fire

- Exploration of patients' early experiences and memories of fire.
- Exploration of patients' current thoughts and feelings about fire.
- Understanding appropriate and inappropriate interest in fire and why people may choose to use fire.
- Patients engage in conditioning work (e.g., covert sensitisation) to reduce identification with fire and fire interest.

Sessions 11-12: Mood and Coping

- Introduction to coping strategies.
- Introduction to problem focused coping.
- Examination of fire as a coping strategy.

Sessions 13-14: Fire Safety Awareness

- Fire Safety Officers visit the group to provide educational sessions around fire safety and fire prevention.
 - Examination of the unintended effects of fire.
-

Sessions 15-18: Communication and Relationships

- Understanding emotions and healthy emotional expression.
- Exploration of the key factors needed for initiating and maintaining healthy relationships.
- Skills practice around healthy emotional expression, effective communication and conflict resolution.

Sessions 19-20: Offence Supportive Thinking

- Introduction to offence supportive thinking.
- Development of skills to recognise and restructure offence supportive thinking.

Session 21: Mental Health and Offending

- Understanding the link between mental health and firesetting.
- Examination of mental health and options for managing any deterioration.

Sessions 22-28: Exploring Offence Patterns/Risk Management

- Introduction to risk management, risk factors, and triggers.
 - Patients develop a personalised risk management plan for their firesetting incorporating the risk factors and triggers associated with this.
 - Identification of personalised coping strategies to manage risks and triggers associated with firesetting in the future.
 - Development of a Good Lives plan for the future.
-

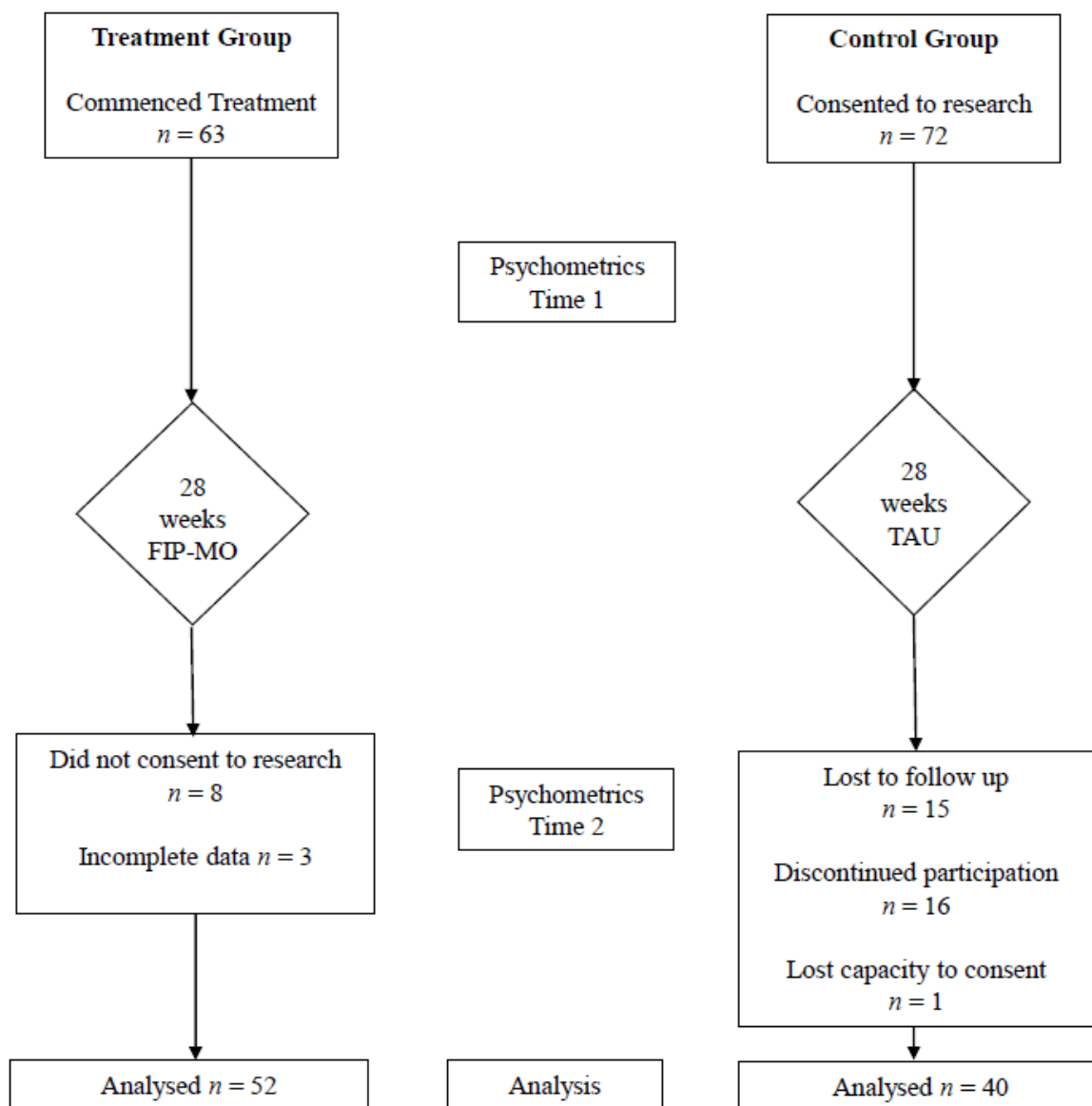


Figure 1: Flow of participants through each stage of study

Table 2: Demographic Information for Treatment and Comparison Groups⁵

Demographic Variable	Treatment Group M (SD)	Comparison Group M (SD)	t	p
Current Age	36.56 (10.75)	33.62 (11.66)	-1.22	.227
Psychiatric Factors				
No. Previous Hospital Admissions	4.91 (5.51)	2.60 (2.99)	-2.42	.018*
Age first contact mental health services	20.54 (9.14)	19.85 (9.20)	-.33	.742
Current Length of Stay (days)	1273.25 (978.02)	1687.67 (1466.10)	1.45	.152
Offence History				
Age first conviction	23.92 (11.33)	22.38 (11.22)	-.58	.562
No. Violent Convictions	2.00 (3.19)	3.83 (7.24)	1.41	.165
No. Property Convictions	1.62 (2.96)	1.33 (2.68)	-.45	.651
No. Acquisitive Convictions	2.82 (8.33)	3.59 (8.40)	.42	.679
No. Sexual Convictions	.11 (.53)	.37 (1.38)	1.20	.235
No. Drugs/Alcohol Convictions	.35 (1.11)	.30 (.74)	-.23	.818
Firesetting History				
Age of first fireset	25.48 (14.12)	21.23 (10.45)	-1.46	.150
No. Adult Firesetting Incidents	2.54 (2.64)	1.81 (1.71)	-1.46	.149
No. Firesetting Convictions	1.09(.70)	.59 (.69)	-3.21	.002*
No. Unconvicted Firesetting Incidents	2.80 (8.04)	1.81 (2.48)	-.73	.470
No. Fires set in Hospital	.50 (1.13)	.32 (.70)	-.81	.418
No. Fires set in Prison	.55 (1.65)	.40 (.79)	-.50	.615
No. Juvenile Firesetting Incidents	3.09 (10.80)	4.21 (17.43)	.34	.737

*Significantly differ $p < .05$

⁵ Data collected from participants' hospital records.

Table 3: Analysis of outcomes measures

Measure	<u>Treatment (FIP-MO) Group</u>			<u>Comparison (TAU) Group</u>			Time 1 vs. Time 2 Intervention x Time
	Pre- Treatment M (SD)	Post- Treatment M (SD)	Effect Size (d_z)	Pre-Treatment M (SD)	Post-Treatment M (SD)	Effect Size (d_z)	
Fire Factors							
Identification with Fire	21.56 (11.65)	18.82 (9.36)	0.36	18.67 (9.32)	18.86 (9.04)	0.03	$p = .090, \eta^2_p = .04$
Serious Fire Interest	11.11 (6.37)	9.64 (4.67)	0.27	10.34 (6.05)	10.91 (5.96)	0.13	$p = .056, \eta^2_p = .04$
Fire Safety Awareness	12.08 (4.22)	10.62 (4.15)	0.41	11.03 (3.27)	10.88 (3.68)	0.05	$p = .061, \eta^2_p = .04$
Normalisation of Firesetting	20.64 (5.48)	20.35 (6.33)	0.06	21.55 (7.11)	21.30 (6.89)	0.05	$p = .964, \eta^2_p = .00$
Fire Scale Total Score	63.43 (20.08)	57.89 (17.17)	0.40	60.00 (18.11)	60.02 (17.75)	0.00	$p = .048, \eta^2_p = .04^*$
Offence Supportive Attitudes							
MCAA - Violence	3.47 (3.18)	3.29 (2.84)	0.09	5.05 (3.90)	4.65 (3.98)	0.12	$p = .700, \eta^2_p = .00$
MCAA – Entitlement	5.88 (2.64)	6.25 (2.52)	0.16	7.23 (2.75)	7.03 (2.62)	0.09	$p = .238, \eta^2_p = .02$
MCAA – Antisocial	3.08 (2.81)	2.67 (2.10)	0.20	4.15 (3.05)	4.50 (3.36)	0.14	$p = .119, \eta^2_p = .03$
MCAA – Associates	5.06 (3.04)	5.25 (2.88)	0.09	5.70 (2.95)	5.49 (2.93)	0.09	$p = .387, \eta^2_p = .01$
Social Competency							
Emotional Loneliness	43.55 (10.06)	42.16 (9.67)	0.16	43.48 (11.65)	44.28 (15.84)	0.05	$p = .379, \eta^2_p = .01$
Assertiveness	65.08 (14.71)	64.76 (15.65)	0.03	67.51 (15.01)	67.82 (15.44)	0.02	$p = .825, \eta^2_p = .00$
Self-Concept							
CFSEI – General Self Esteem	8.24 (3.74)	9.18 (3.96)	0.27	9.23 (3.84)	9.20 (4.06)	0.01	$p = .190, \eta^2_p = .02$
CFSEI – Social Self Esteem	4.57 (2.00)	5.02 (2.03)	0.22	4.93 (2.28)	4.78 (2.22)	0.09	$p = .143, \eta^2_p = .02$
CFSEI – Personal Self Esteem	3.57 (2.13)	4.27 (2.07)	0.38	3.63 (1.92)	3.95 (1.74)	0.17	$p = .336, \eta^2_p = .01$
Self-Regulation							
STAXI – State Anger Total	18.67 (6.40)	16.65 (4.60)	0.32	17.51 (5.90)	17.24 (7.86)	0.03	$p = .309, \eta^2_p = .01$
STAXI – Trait Anger Total	18.56 (6.02)	17.50 (7.27)	0.21	19.08 (7.25)	19.81 (9.28)	0.16	$p = .151, \eta^2_p = .03$
STAXI – Anger Expression Index	38.41 (16.80)	31.84 (13.54)	0.49	36.33 (13.13)	39.33 (16.36)	0.21	$p = .002, \eta^2_p = .11^*$
Locus of Control	21.49 (5.44)	22.43 (5.10)	0.22	21.87 (5.33)	22.05 (6.07)	0.04	$p = .429, \eta^2_p = .01$

Note: Decreases in scores pre-post treatment are seen as positive shifts with the exception of the CFSEI whereby increased scores are viewed as positive. *Significant $p < .05$

Table 4: Participant Post-Group Evaluation Ratings

Area of Feedback	M (SD)	% Rating either 4 or 5 (N)
Overall satisfaction with treatment		
I feel like I benefitted from the group	4.17 (1.02)	76.9 (20)
My individual treatment has been helpful	4.52 (.66)	92.3 (24)
How important were each of these areas to you and your recovery?		
Understanding fires and how they spread	4.47 (.89)	80.8 (21)
Learning about the potential effects of fires on other people	4.39 (.72)	84.6 (22)
Learning what motivated me to offend	4.17 (1.19)	73.1 (19)
Understanding offence-supportive thinking	3.86 (1.01)	68.0 (17)
Learning to change or control my inappropriate interest in fire	3.65 (1.43)	57.7 (15)
Understanding the development of my firesetting problems	3.78 (1.24)	55.4 (17)
Understanding how earlier experiences and family life affected me	3.91 (1.20)	69.3 (18)
Learning new relationship and communication skills	3.78 (1.20)	65.4 (17)
Learning how to cope with difficult situations	4.26 (.86)	73.1 (19)
Understanding my triggers and risk factors	4.43 (.84)	80.8 (21)
Understanding my offence chain and patterns in my offending	4.21 (1.12)	73.1 (19)
Learning about Good Lives and how to create a more satisfying life for myself	4.39 (1.07)	80.7 (21)
Sharing my experiences with group members	3.41 (1.26)	69.3 (18)
Feeling as though I could relate to other members of my group	3.82 (1.33)	69.3 (18)
Hearing other perspectives and viewpoints	4.30 (.92)	80.8 (21)
Getting help and support from others	3.86 (1.17)	61.6 (16)
Questioning or challenges from other group members	3.69 (1.22)	61.6 (16)