Fire-setting and Psychopathology: A Brief Overview of Prevalence, Pathways and Assessment

Abstract

Purpose: There is increasing attention on investigating the association between fire-setting and psychopathology and also the degree to which fire-setting is a manifestation of mental disorder. Despite the actual prevalence of pyromania remaining elusive, there is growing evidence in the literature highlighting the higher rates of psychiatric mental health disorders in fire-setters, the most common being: schizophrenia, mood disorders (such as anxiety and depression), personality disorders, alcohol abuse, and intellectual disability. The purpose of this paper is to highlight more recent work on prevalence, pathways and assessment in offenders who have engaged in fire-setting.

Design/methodology/approach: This paper provides an overview of the literature on fire-setting and psychopathology with a focus on prevalence, pathways and assessment.

Findings: This review identified key literature which has identified a variety of distinct pathways to fire-setting and also highlights two assessments/measures for fire-setters. Such information is useful for clinicians when they encounter this group of offenders.

Practical implications: This paper has identified in the literature and recommends the use of the 'Fire Setting Scale' and the 'Fire Proclivity Scale' in clinical and/or forensic practice.

Originality/value: There is a very real need for additional empirical research in this area. There is also a need for an increased awareness and understanding of how various types of psychopathy can contribute to fire-setting in both a legal and clinical context.

Keywords: Fire-setting; arson, pyromania; psychopathology; mental health; assessment; pathways.

Pyromania is characterised by fascination with and attraction to fire and fire-starting paraphernalia, in addition to the deliberate and repeated setting of fires. Feelings of tension or affective arousal prior to setting a fire, and feelings of pleasure, gratification, or relief during or following fire-starting are often experienced by the individuals who had been diagnosed with pyromania. The act of fire-setting is also not motivated by any financial or material gain, to conceal crimes, in response to delusion or hallucination, or due to a lack of judgment. Also, the fire setting behaviours should not be better accounted for by a conduct disorder or other psychiatric illness (American Psychiatric Association, APA, 2013). It is common for individuals with pyromania to spend time closely associated with fire departments, even becoming firefighters themselves, and are frequently seen watching fires in their neighbourhoods. These individuals have been found to deliberately set small fires or set off false alarms so that they can watch the firefighting equipment (APA, 2013). Surprising, there is a relatively little amount of research investigating pyromania and it is a possibly under-reported impulse control disorder. Individuals who fulfil the diagnostic criteria for pyromania engage in acts of arson, frequently endangering their lives and those of others, due to their powerful urges to watch existing fires or to set new fires (APA, 2013). Even though for over two centuries pyromania has been recognised as a mental health disorder, an accurate prevalence of the disorder remains elusive. For instance, Nanayakkara and colleagues (2015) highlighted in their paper that the prevalence rates found across studies range from 0.4% to 21% with the more methodologically robust research suggesting that it is an extremely rare disorder (Nanayakkara et al., 2015).

Fire-setting and psychopathology

There is increasing attention on investigating the association between fire-setting and psychopathology and also the degree to which fire-setting is a manifestation of mental disorder (Nanayakkara et al., 2015). Despite the actual prevalence of pyromania remaining elusive, there is growing evidence in the literature highlighting the higher rates of psychiatric mental health disorders in fire-setters, the most common being: schizophrenia, mood disorders (such as anxiety and depression), personality disorders, alcohol abuse, and intellectual disability (Tyler & Gannon, 2012). For instance, in their study Alexander and colleagues (2015) studied a group of individuals with a history of fire-setting (n=30) who were obtained from a sample

of 138 patients who were receiving treatment in a forensic intellectual disability service in the United Kingdom (UK). The group of 30 fire-setters were compared to a group of individuals with no history of fire-setting on a wide range of outcome variables. Findings showed that an association between fire-setting and significant psychopathology such as psychosis and personality disorders. A formal conviction for arson was only found in half of the fire setters. A violence conviction and criminal sections/restriction orders were found to be more likely in the group of fire setters (Alexander et al., 2015). In another study carried out by Tyler and colleagues (2015) information (such as sociodemographic details, psychiatric history, offense history factors, etc.) was gathered from patient hospital records for 77 (43 fire-setters and 34 non-fire-setters) mentally disordered offenders. Interestingly, the fire-setters were found to be more likely to have expressed an interest in fire/explosives and have fulfilled the diagnostic criteria for a schizophrenic disorder. Interestingly, compared to male fire-setters, the findings suggested that female fire-setters were more likely to have a greater amount of fire-setting incidents. Interestingly, the largest predictor of repeat fire-setting was an interest in fire (Tyler, Gannon, Dickens, & Lockerbie, 2015).

Another study investigated the common features in fire-setters (Gannon & Pina, 2010) and their findings indicated that the characteristics of a typical fire-setter included: being a Caucasian, low-skilled, young male with a weak socioeconomic status and an early onset of criminal behaviour. Other common characteristics in this group of offenders included: having experienced neglect, abuse, and dysfunctional attachment styles in the family situation, in combination with a limited social network, impaired social skills and low levels of self-esteem. The average fire-setter was also found to display a high level of impulsivity, which was often combined with conduct disorder (CD)/antisocial personality disorder (PD), schizophrenia, substance abuse and affective and/or anxiety disorders (Gannon & Pina, 2010). In another study by the same group of researchers, Gannon and colleagues (2013) compared matched groups of 68 imprisoned adult fire-setters and non-fire-setters. Fire-setters not only distinguished themselves with respect to fire-related characteristics (e.g., identification with fire) but also with respect to emotional/self-regulation characteristics (such as lower levels of general self-esteem). However, there was no significant differences between the two groups on social competence, proneness to boredom, impression management and offense-supportive attitude measures. However, Hagenauw, Karsten, Akkerman-Bouwsema, De Jager and Lancel (2015) found that the 14 arsonists in their sample of 73 patients who were committed to a forensic psychiatric hospital (FPH) exhibited poorer social and relational skills. The arsonists were also

found to exhibit more behavioural problems prior to the age of 12, longer treatment history, higher prevalence of psychosis, and higher rates of hostility, passive-aggressiveness, and irritability.

In their study, Ducat and colleagues (2013) compared non-fire-setters, exclusive fire-setters (those who had committed no other types of offenses other than fire-setting), and mixed fire-setters (fire-setting and more than three other offense types). Their findings suggested that the fire-setters were more regularly unemployed when compared to the non-fire-setters, had exhibited more behavioural problems in childhood and suicidal ideation and had a history of psychiatric or psychological treatment and Axis I and II disorder diagnoses (Ducat, McEwan, & Ogloff, 2013). Lastly, Wilpert and colleagues (2017) examined a group of arsonists (n = 55) and compared them to a group of violent offenders (n = 41) and found that arsonists were significantly more frequently diagnosed with a Diagnostic and Statistical Manual of Mental Disorders (DSM) Axis II disorder. They also were more isolated socially and had poor coping skills. Additionally, more drug abuse/dependence, a younger age of onset of antisocial behaviour, a more extensive criminal history and a greater percentage of re-offending were found in the violent offenders. Regarding the types of offenses, the group of arsonists comprised of more generalists than specialists, compared with the violent offenders. An individual was classified as a specialist if their prior and current offenses were of exclusively one type (arson or violence). They were classified as generalists if there were convictions involving at least two or more offense type categories (Wilpert, van Horn, & Eisenberg, 2017).

Pathways to fire-setting for mentally disordered offenders

Recently some researchers have investigated the offence process for fire-setting in mentally disordered offenders. Tyler and Gannon (2017) developed an offence chain model which detailed the offence process for fire-setting in mentally disordered offenders—the Firesetting Offence Chain for Mentally Disordered Offenders (FOC-MD; Tyler et al., 2013). Developed based on offenders' narratives of their offences, the FOC-MD describes, in a temporal sequence, the offence process for both male and female mentally disordered fire-setters. The FOC-MD can be divided into four key phases: (a) background factors (childhood and adolescent experiences until the age of 18 years), (b) early adulthood (from age 18 until about one year prior to the offence), (c) pre-offence period (events which took place about one year

prior to the event until moments before), and (d) offence and post-offence period (covering the offence itself and factors immediately post-offence) (Tyler & Gannon, 2017).

In an earlier study by the same group of researchers (Tyler et al., 2013), preliminary observations indicated that mentally disordered fire-setters followed, through the FOC-MD, one of three distinct pathways to fire-setting, namely, fire interest–childhood mental health, no fire interest–adult mental health, and fire interest–adult mental health. The "fire interest–childhood mental health" pathway was taken by individuals who had a minimum of two fire risk factors and mental health problems in childhood. Individuals who followed this particular pathway were identified as being more likely to engage in detailed planning of the fire, experienced positive fire-related affect and watched the fire. The "no fire interest–adult mental health" pathway was followed by individuals who typically did not develop any fire risk factors in childhood. Further, their mental health issues tended to onset in proximity to the fire. They also tended not to engage in any planning of the offence. If they did engage in planning of the act, it was low level and proximal to setting the fire. They also had a tendency to feel indifferent about setting the fire and did engage in watching the fire they started. Lastly, those who followed the "fire interest–adult mental health" pathway developed a minimum of two fire-related risk factors in their childhood. However, mental illness did not onset until adulthood in the individuals who followed this pathway. They tended to engage in low-level planning of the fire, and typically watched the fire but only when the contextual circumstances allowed them to do so (i.e., they attempted to avoid detection or they were trying to protect themselves) (Tyler & Gannon, 2017).

The findings from the more recent study carried out by Tyler and Gannon (2017) supported these earlier findings (Tyler et al., 2013) by showing again that there are three distinct pathways through the FOC-MD that mentally disordered fire-setters appear to follow, namely, fire interest–childhood mental health, no fire interest–adult mental health, and fire interest–adult mental health. The three pathways were the same three pathways identified as part of the previous study (Tyler et al., 2013). The development of fire-related risk factors and the age at time of onset of mental health difficulties may be useful critical factors to consider when trying to distinguish between the offence processes across different subtypes of mentally disordered fire-setters (Tyler & Gannon, 2017).

Useful measures to use in research in this field: the 'Fire Setting Scale' and the 'Fire Proclivity Scale'

Two separate scales were developed by Gannon and Barrowcliffe (2012) which this paper recommends to clinicians in this field. These two scales are the Fire Setting Scale and the Fire Proclivity Scale. They were developed in order to assess, respectively, the antisocial and fire interest factors related to fire-setters and the propensity of fire-setters to be attracted to, aroused by, behaviourally inclined, and antisocially motivated to light fires. The Fire Setting Scale consists of 20-items. It was developed by drawing from the findings from reviews in the empirical literature which have identified factors which have been found to be significant in detecting fire-setters (both adolescents and adults) (e.g., Gannon, 2010; Gannon & Pina, 2010). The 20-item scale consists of two 10-item subscales which measure antisocial behavioural problems associated with fire-setting (hereafter referred to as antisocial behaviour) and general fire interest (hereafter referred to as fire interest). An example of a behaviour items is: 'I like to engage in acts that are dangerous' and, 'I am a rule breaker'. An example of fire interest items is: 'I get excited thinking about fire' and 'I like to watch and feel fire'. Items are scored on a seven-point Likert scale from 1 (Not at all like me) to 7 (Very strongly like me). The Fire Proclivity Scale aims to assess an individual's propensity to engage in fire-setting. General scales which assess fire-setting behaviour cannot give any indication of an individual's behavioural intentions. To develop this scale, Gannon and Barrowcliffe (2012) used a combination of Bohner and colleague's (1998) Rape Proclivity Scale and their own knowledge of the general fire-setting empirical research literature to construct six hypothetical incidences of fire-setting. An example is included below:

'Terry had always had an interest in fire and became excited when thinking about fire. Often when alone either at work or at home Terry would light matches. Terry watched as the intensity and the colour of the flame changed as more of the match began to burn. As the flame began to die out but before totally extinguished Terry lit another match from the original flame. Terry was fascinated by the falling trail of ash left behind by the burning match and by the intensity of the heat from one little flame.'

For each of the six descriptions of a hypothetical incidence of fire-setting, participants are asked to imagine themselves in the same situation and then to answer four questions about themselves using a five-point Likert scale. The questions aim to tap into each participant's fascination with the fire in the scenario (i.e., 'In this situation, how fascinated would you be by

the fire?'; 1 = Not at all fascinated to 5 = Very strongly fascinated), behavioural propensity to engage in a similar behaviour (i.e., 'In this situation, could you see yourself doing the same?'; 1 = Would definitely not have done the same to 5 = Would definitely have done the same), general arousal to fire (i.e., 'In this situation, how much would you have enjoyed watching the fire'; 1 = Would not enjoy it at all to 5 = Would greatly enjoy it) and general antisocialism (i.e., 'Imagine that someone [e.g., a passer by] had seen you light the fire. In this situation, how much would you have enjoyed watching their reaction?'). Across all the six descriptions, the following can be derived: (1) A general overall fire-setting propensity score (i.e., a participant's total score across all six vignettes, for all four questions; ranging from 24 to 120); (2) A general fire-setting fascination score (i.e., a participant's score across all six vignettes, for the fascination question; ranging from 6 to 36); (3) A general fire-setting behavioural propensity score (i.e., a participant's score across all six vignettes, for the behavioural propensity question; ranging from 6 to 36); (4) A general fire-setting arousal score (i.e., a participant's score across all six vignettes, for the arousal question; ranging from 6 to 36); and (5) A general fire-setting antisocialism score (i.e., a participant's score across all six vignettes, for the antisocialism question; ranging from 6 to 36). (Gannon & Barrowcliffe, 2012 – see page 6-7).

In their study, Gannon and Barrowcliffe (2012) found that these new scales show promise for detecting factors associated with fire-setting. To their knowledge, and the authors of the present paper, there is no other scale which asks respondents to imagine themselves in the situation of a fire-setting protagonist, or rate actual behavioural propensity to engage in similar fire-setting acts. There exist few established measures which assess fire interest and, as just mentioned, not one measure uses the power of imagination in order to increase the validity of their self-report measure (Murphy & Clare, 1996) which further emphasises the need to draw research and clinical attention to these two scales developed by Gannon and Barrowcliffe (2012). There is a need for further research to look at the validity and reliability of these two new scales. Gannon and Barrowcliffe (2012) also recommend that there is a need to validate the Fire Proclivity Scale to be used to identify, for instance, individuals in the community who may require preventative work or individuals in secure settings who require work on their fascination with and sensory reinforcement from fire. Clinical teams could also use it (once it has been validated) as a pre and post measure in order to measure any improvements after completion of an intervention. As stated by Gannon and Barrowcliffe (2012): *"Gaining such knowledge would significantly increase our understanding of firesetting aetiology, the similarities and differences between detected and undetected firesetters, and would allow many*

professionals to begin working in a field that has been historically researched only by psychiatrists or mental health professionals" (pp. 14).

Conclusion

This review identified key literature which has identified a variety of distinct pathways to fire-setting and also highlights two assessments/measures for fire-setters. Such information is useful for clinicians when they encounter this group of offenders. There is a very real need for additional empirical research in this area. There is also a need for an increased awareness and understanding of how various types of psychopathy can contribute to fire-setting in both a legal and clinical context.

References

Alexander, R. T. Chester, V., Green, F. N., Gunaratna, I. and Hoare, S. (2015), "Arson or fire setting in offenders with intellectual disability: clinical characteristics, forensic histories, and treatment outcomes", Journal of Intellectual and Developmental Disability, Vol. 2, pp. 189-197. https://doi.org/10.3109/13668250.2014.998182

American Psychiatric Association. (2013), "Diagnostic and statistical manual of mental disorders" (5th ed., text revision). Washington, DC: Author.

Bohner, G., Reinhard, M.-A., Rutz, S., Sturm, S., Kerschbaum, B. and Effler, D. (1998), "Rape myths as neutralizing cognitions: Evidence for a causal impact of anti-victim attitudes on men's self-reported likelihood of raping", European Journal of Social Psychology, Vol. 28, pp. 257–269. https://doi.org/10.1002/(SICI)1099-0992(199803/04)28:2<257::AID-EJSP871>3.0.CO;2-1

Ducat, L., McEwan, T. and Ogloff, J. R. P. (2013), "Comparing the characteristics of firesetting and non-firesetting offenders: Are firesetters a special case?", The Journal of Forensic Psychiatry and Psychology, Vol. 24 No. 5, pp. 549-569. https://doi.org/10.1080/14789949.2013.821514

Gannon, T. A. and Barrowcliffe, E. (2012), "Firesetting in the general population: The development and validation of the Fire Setting and Fire Proclivity Scales", Legal and Criminological Psychology, Vol. 17 No. 1, pp. 105-122. https://doi.org/10.1348/135532510X523203

Gannon, T. A. and Pina, A. (2010), "Firesetting: Psychopathology, theory and treatment", Aggression and Violent Behavior, Vol. 15 No. 3, pp. 224–238. https://doi.org/10.1016/j.avb.2010.01.001

Gannon, T. (2010), "Female arsonists: Key features, psychopathologies and treatment needs", Psychiatry: Interpersonal and Biological Processes, Vol. 73 No. 2, pp. 173–189. https://doi.org/10.1521/psyc.2010.73.2.173

Hagenauw, L. A., Karsten, J., Akkerman-Bouwsema, G. J., de Jager, B. E. and Lancel, M. (2015), "Specific risk factors of arsonists in a forensic psychiatric hospital", International Journal of Offender Therapy and Comparative Criminology, Vol. 59 No. 7, pp. 685-700. https://doi.org/10.1177/0306624X13519744

Murphy, G. H. and Clare, I. C. H. (1996), "Analysis of motivation in people with mild learning disabilities (mental handicap) who set fires", Psychology, Crime and Law, Vol. 2 No. 3, pp. 153–164. https://doi.org/10.1080/10683169608409774

Nanayakkara, V., Ogloff, J. R. and Thomas, S. D. (2015), "From haystacks to hospitals: An evolving understanding of mental disorder and firesetting", International Journal of Forensic Mental Health, Vol 14 No. 1, pp. 66-75. https://doi.org/10.1080/14999013.2014.974086

Tyler, N. and Gannon, T. A. (2017), "Pathways to firesetting for mentally disordered offenders: a preliminary examination", International Journal of Offender Therapy and Comparative Criminology, Vol. 61 No. 8, pp. 938-955. https://doi.org/10.1177/0306624X15611127

Tyler, N., Gannon, T. A., Dickens, G. L. and Lockerbie, L. (2015), "Characteristics that predict firesetting in male and female mentally disordered offenders", Psychology, Crime and Law, Vol. 21 No. 8, pp. 776-797. https://doi.org/10.1080/1068316X.2015.1054382

Tyler, N., Gannon, T. A., Lockerbie, L., King, T., Dickens, G. and De Burca, C. (2013), "A firesetting offence chain for mentally disordered offenders (FOC-MD)", Criminal Justice and Behavior, Vol. 41 No. 4, pp. 512-530. https://doi.org/10.1177/0093854813510911

Wilpert, J., van Horn, J. and Eisenberg, M. (2017), "Arsonists and violent offenders compared: two peas in a pod?", International Journal of Offender Therapy and Comparative Criminology, Vol. 61 No. 12, pp. 1354-1368. https://doi.org/10.1177/0306624X15619165