ARTICLE

Fire Setting and the Impulse-Control Disorder of Pyromania

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For some few individuals, fascination with fire veers from a healthy respect to an unhealthy obsession. In rare instances, susceptible individuals may suffer from a buildup of tension that can only be relieved by deliberate fire setting, and that cycle of behavior is believed to represent the crux of the mental disorder called pyromania. Therefore, residents should note that mere fires setting is not at all pathognomonic for pyromania.

The term "pyromania" was first used in 1833 by Marc and was derived from the 19th-century term monomania, which described a type of insanity characterized by impulsive acts devoid of motive (1). The DSM-5 defines pyromania as requiring the following criteria:

A. Deliberate and purposeful fire setting on more than one occasion.
B. Tension or affective arousal before the act.
C. Fascination with, interest in, curiosity about, or attraction to fire and its situational contexts (e.g., paraphernalia, uses, consequences).
D. Pleasure, gratification, or relief when setting fires or when witnessing or participating in their aftermath.
E. The fire setting is not done for monetary gain, as an expression of sociopolitical ideology, to conceal criminal activity, to express anger or vengeance, to improve one's living circumstances, in response to a delusion or hallucination, or as a result of impaired judgment (e.g., major neurocognitive disorder, intellectual disability, substance intoxication).
F. The fire setting is not better explained by conduct disorder, a manic episode, or antisocial personality disorder. (2, pp. 476–477)

Per the DSM-5, "individuals with this disorder are often regular 'watchers' at fires in their neighborhoods, may set off false alarms, and derive pleasure from institutions, equipment, and personnel associated with fire. They may spend time at the local fire department, set fires to be affiliated with the fire department, or even become firefighters" (2).

Were a psychiatry resident to encounter a patient meeting DSM-5 criteria for pyromania, it would most likely occur within a forensic unit. Furthermore, for residents to properly understand and treat this rare condition, some historical perspective can be illuminating. For over 150 years, a schism existed to some extent within U.S. psychiatry as to whether pyromania even existed as a mental disorder. Some saw it solely as a form of either insanity or as a wholly criminal act, while others viewed pyromania as a legitimate mental disorder worthy of diagnostic consideration (3). Ultimately, as psychiatry grappled with issues of personal accountability over the course of the latter half of the 20th century, the concept of pyromania as a legitimate mental disorder eventually won out (3), with exceptions for clearly criminal or psychotic behavior, as elucidated in the DSM-5 criteria above.

RESEARCH FINDINGS

Epidemiology of Fire Setting and Pyromania

Fire setting is predominantly a male condition. In a landmark study by Lewis and Yarnell (4) of 1,145 fire setters, over two-thirds of the perpetrators were male. Intelligence may play a role in fire setting behavior. Roughly 70% of the adults in the aforementioned case series were below the range of normal intelligence. In a study by Grant and Kim of 21 individuals with pyromania, the mean age at onset was 18 years (SD=6). Eighty-six percent reported urges to set fires, and subjects reported setting a fire every 6 weeks (SD=4), on average. Forty-eight percent met criteria for an impulse-control disorder, and 62% had a comorbid mood disorder (5).

Prevalence of Pyromania

Pyromania is a rare disorder, and research with regard to it is infrequently conducted, generally involving small numbers of patients. With regard to its prevalence, in separate studies of 113 arsonists (6), 191 state hospital patients with a history of fire setting (7), and 27 female fire setters (8), none were diagnosed with pyromania (9). Similarly, in a Finnish study of 90 arson recidivists, only three (3.3%) met DSM-IV-TR criteria for pyromania (10). Nine other arson recidivists would have met pyromania criteria but did not because they were intoxicated with alcohol at the time of the fire setting, thus failing to meet criterion E. Additionally, in a 1967 U.S. study of 239 convicted arsonists using different DSM criteria, pyromania was found to be the motive in 23% of such cases (11). In 1967, the applicable DSM criteria did not preclude a diagnosis of pyromania for individuals who were under the effects of substance intoxication at the time of the fire setting.

Nosology of Pyromania

Pyromania's classification within the DSM has evolved over the years. It began as an obsessive-compulsive reaction in DSM-I. It was dropped in DSM-II. When it returned in DSM-III, it was an impulse-control disorder, a category that has now been rolled up into DSM-5's disruptive, impulse-control and conduct disorders.

Sexual Gratification

Cases of fires being lit for sexual gratification appear to be rare. Examination of 1,145 adult male fire setters found that 40 (3.5%) engaged in such behavior for sexual arousal (10). A subsequent study of 243 male fire setters revealed that only six persons (1.2%) did so (12).

Children and Adolescents

Fire setting has been extensively studied in children, where it is commonly comorbid with attention deficit hyperactivity disorder (13). Multiple factors have been found to contribute to the emergence of this behavior, including maltreatment (14) and family stress, with experimentation and boredom being common reasons given for the fire setting (13). There is little in the literature, however, specifically addressing pyromania. One case report did document the development of pyromania in a 9-year-old boy after escitalopram was started for separation anxiety and encopresis, which resolved with cessation of the escitalopram (15). Despite some early research suggesting a link between the Macdonald Triad of enuresis, cruelty to animals and fire setting (10), subsequent research found no relationship between enuresis and fire setting recidivism (16). Other discussions of treatment options in the literature focus primarily on children and adolescents and involve parenting training (17), as well as various forms of therapy and relaxation training (18).

In children and adolescents exhibiting fire setting behavior, the differential diagnosis should include conduct disorder, pyromania, and curiosity fire setting. Children who merely experiment with matches as a part of normal adolescent development should be considered curiosity fire setters instead of being diagnosed with conduct disorder, as they lack the intent to cause serious damage.

TARASOFF: DUTY TO WARN AND PROTECT

Given fire setting's propensity for property damage and risk for loss of life, it should be noted that a history of fire setting in a patient may give rise to a Tarasoff duty to warn and/or protect on the part of psychiatry residents. Clearly this duty is jurisdiction-dependent, and residents should be familiar with the Tarasoff statutes or case law in the state in which they practice.

IMAGING AND TREATMENT

In at least one case report, imaging has revealed an abnormality that may have been related to the pyromania itself. Specifically, an 18-year-old male who met criteria for pyromania was found to have a left inferior frontal perfusion deficit on single-photon emission computed tomography imaging. Following 3 weeks of cognitive-behavioral therapy (CBT) and 1 week of topiramate (75 mg daily), the patient reported a complete remission in his urges to set fires (19). In another case report, a man with a diagnosis of pyromania, whose condition was so severe that he had been accused of setting an individual on fire, was successfully treated with olanzapine and valproic acid. He experienced a subsequent abatement of his fire setting behaviors (20). In other patients, treatments with selective serotonin reuptake inhibitors, antiepileptic medications, lithium, antiandrogens, or atypical antipsychotics have been proposed (1). Furthermore, CBT has displayed some promise (1).

CONCLUSIONS

Many misperceptions exist about pyromania, one being that the majority of fire setters suffer from pyromania. However, the limited research on this condition does not support that proposition. Fire setting is not at all pathognomonic for pyromania, as many fire setters engage in such behavior for reasons other than anxiety relief, such as a result of schizophrenia, manic episodes, and personality disorders. Thus, psychiatry residents should be aware that pyromania is an extremely rare disorder that must not be confused with fire setting motivated by a criminal motive or which occurs under the influence of a substance. Furthermore, for the vast majority of adolescent fire setters who often set fires out of boredom or experimentation, pyromania would not be the correct diagnosis due to the DSM requirement of a buildup of tension and subsequent relief provided by fire setting. Persons diagnosed with pyromania are predominantly male, with the mean age being 18 years old, and fires are typically set every 6 weeks. Approximately half of these individuals suffer from a comorbid impulse-control disorder.

Another misperception about pyromania is that the act of fire setting is engaged for sexual gratification. However, the data similarly fails to support

KEY POINTS/CLINICAL PEARLS

- Pyromania is quite rare. In a study of 90 arson recidivists, only three met criteria for pyromania.
- Individuals with pyromania suffer from a buildup of tension that can only be released by deliberate fire setting.
- Patients who set fires due to being antisocial, merely for entertainment, or while under the influence of a substance cannot meet criteria for pyromania.
- Regarding treatment, selective serotonin reuptake inhibitors, topiramate, valproic acid, and olanzapine each have some support in the literature, depending on patient comorbidities.

that contention, with only 1.2% of fire setters in one study doing so for sexual arousal. Additionally, residents should be aware that the Macdonald triad of enuresis, cruelty to animals and fire setting, borne out in early studies has not held up in a later study with regard to the enuresis component and its link to fire setting recidivism. Lastly, the discussion of treatment options has largely been limited to case reports, given the rarity of the condition. This highlights the need for further research regarding this rare yet important psychiatric condition that, if left untreated, can result in considerable property damage and the loss of innocent life.

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