

Commentary: Models and Correlates of Firesetting Behavior

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And Study of Revenge, Immortal Hate—John Milton, *Paradise Lost*

From antiquity, fire has played an integral role in human survival. Numerous references to its mythical and religious significance can be found in ancient biblical and mythological texts.^{1–4} In modern times, however, fire has been less a symbol of reverence and too often a tool of violence and destruction.² Every year in the United States, approximately 500,000 incendiary and suspect fires occur, causing over \$2 billion in losses, 3,500 injuries, and 750 deaths.⁵ According to Lyman,⁶ “when measured on a cost per incident basis, arson is the most expensive crime committed.”

No other area of forensic practice has been more detrimentally affected by inaccurate presumption than firesetting. Fineman⁷ contends that such widespread misunderstanding is largely due to the failure of mental health professionals to dispel misconceptions about fire-related behavior. Clearly, it is incumbent on mental health professionals to work with investigators and professionals across disciplines in an effort to facilitate a better understanding of firesetting phenomena. The paper that we have been asked to comment on is potentially an important source of data on this complex behavior.⁸ We will begin by reviewing the literature on juvenile firesetting to place this article in the context of present knowledge.

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Theoretical Models of Firesetting Behavior

Theoretical models provide a framework through which firesetting behavior can be conceptualized. Classic psychoanalytic theory posits that between the ages of five and seven, children become interested in fire.^{9,10} Gaynor and Hatcher¹¹ explained Freud's contention that the underlying pleasure inherent in igniting and extinguishing fire lay in the association of sexual feelings with urination. Children were said to extinguish fantasy fires through the urine stream.⁹ Furthermore, firesetting was presumed to serve as a substitute for forbidden masturbatory impulses because the excitement of engaging in firesetting provided sexual arousal for the perpetrator.¹¹

Support for the psychoanalytic association between firesetting and sex can be found in a subset of cases in which masturbation coincides with such activity.¹² However, Barnett and Spitzer⁹ point out that a sexually derived basis for firesetting has been subject to controversy even within the psychoanalytic community, and that other interpretations, such as undercontrolled unconscious aggression and fixation at the oral phase of development, have also been raised.

The libidinal explanations of psychodynamic theorists have given way to alternative paradigms of firesetting behavior. Social learning models hold that juvenile firesetting is the manifestation of interpersonal failures that lead to the deviant expression of aggression and control.¹¹ Although a comprehensive treatment of the social learning model is beyond the scope of this article, simply stated, it is theorized that firesetting can be linked to modeling of aggression and inadequate social skills.

Several researchers have proposed integrated theoretical models conceptualizing firesetting. Kolko and Kazdin¹³ proposed that risk factors for firesetting could be divided into three broad categories: early learning experiences, personal repertoire, and familial influence. Early learning experiences include modeling, interest, direct experiences, and availability of incendiary materials. Personal repertoire factors describe cognitive and behavioral limitations, as well as motivational factors. Finally, familial influence involves the extent of parental involvement and external stressors.

Jackson *et al.*¹⁴ posited that arsonists originate from a pool of individuals who are fundamentally disadvantaged in their ability to influence their environment. Given their perceived ineffectiveness, arsonists are engulfed by feelings of worthlessness and are therefore compelled to take extraordinary measures to effect influence and gain recognition. By engaging in firesetting, the arsonist is afforded a means of exerting power over the environment. It is an individual's reinforcement history that influences the selection of fire as a means to express aggression and power.

Fineman⁷ contends that the "cognitive-behavioral-affective progression" is central to firesetting behavior. An individual's environment and reinforcement history predisposes him to the maladaptive use of fire. That individual then undergoes a crisis or traumatic event that results in increased stress and feelings of victimization, along with decreased impulse control. A fantasy is generated in which some desired reward is earned through firesetting. The decision is then made to set a fire, and the necessary materials are gathered. The firesetter rationalizes the decision within the context of a negative affective state, such as anger. After the fire is set, the individual's affective state shifts to elation and feeling powerful, followed by a relatively stable sense of high optimism and lack of remorse.

Demographic Correlates

Specific demographic correlates of firesetting risk have been identified in empirical studies. Some of the more commonly mentioned correlates include male gender, age, dysfunctional families, stressful life events, low socioeconomic status, and academic or vocational difficulties.

Firesetting is primarily a male phenomenon.^{9,15-17} Of those apprehended, adult male firesetters out-

number women six to one,^{12,18} and as many as 80 percent of apprehended juvenile firesetters are boys.¹⁹ Moreover, it is estimated that in large cities, between 50 and 60 percent of all incendiary and suspect fires are set by persons under the age of 18.¹⁷

Most firesetters are raised in dysfunctional family systems.^{11,21,22} Children who are exposed to aggressive or violent behavior in a family system are reported to be at higher risk for firesetting.¹¹ Firesetters often come from unstable homes, in which a parent is absent or parenting is inconsistent.¹² Parents of juvenile firesetters are more likely to have criminal records,¹⁶ substance abuse, or mental illness.^{10,11,13} Inappropriate parental response to a child's fire-related activity has also emerged as a major factor in the retrospective analyses of data on juvenile firesetters.

The occurrence of a stressful event has also been associated with firesetting.¹³ The experience of a trauma or crisis may reduce the capacity to tolerate stress, and in turn increase impulsivity.⁷ The occurrence of a major life stressor can exacerbate the already impaired affective state of a firesetter, thereby initiating engagement in fire-related acts. Examples of such stressors include, but are not limited to, the death of a family member, divorce or separation, birth of a sibling, geographic move, loss of a job, or school expulsion.^{7,13,22} In one major study, suicidal ideas and alcohol abuse emerged as significant factors.²³

Investigation into the socioeconomic background of firesetters has provided mixed results. Gaynor and Hatcher¹¹ describe varied findings. Some studies indicate that most offenders come from lower-income households, other studies portray firesetting as a middle-class crime, and still others have found socioeconomic class to be unrelated to firesetting behavior. Thus, to date, it is unclear whether socioeconomic status is related to firesetting.

Intelligence is not a consistently significant factor in discriminating arsonists from other populations. Arsonists are not uniformly of subnormal intelligence. However, they tend to have learning or emotional disabilities that cause problems in academic and vocational functioning.⁷ Intelligence levels in juvenile firesetters fall primarily within the normal range of functioning.¹⁹

Interest in Fire

Between 40 and 60 percent of normal children between the ages of 3 and 12 years play with matches.⁹

Given that approximately half of all children engage in some sort of fire play, the normal development of interest in fire must be understood to appreciate deviant firesetting in childhood.

Gaynor and Hatcher¹¹ describe children's expression of interest in fire as fitting three broad behavioral categories: children may ask questions regarding the nature and function of fire; they may engage in fire-related play, such as enacting the role of a firefighter; and they may request permission to participate in fire-related activities, such as lighting the fireplace or barbecue. Each behavior is normal, and when met with appropriate adult acknowledgment can serve to facilitate a healthy understanding and respect for fire.

Grolnick *et al.*¹⁷ evaluated 760 children ranging in age from 6 to 14. They found that juvenile fire play was widespread, involving more than one-third of the sample. Boys reported more involvement with fire than girls. Children who anticipated being punished for playing with fire were far less likely to engage in fire play than those who did not expect to be punished. Finally, those children who had access to incendiary devices or had responsibilities involving fire, were more likely to engage in fire play.

To determine who is at risk for setting fires, factors that shift normal interest in fire to pathological behavior must be identified. Curiosity about fire has been defined as simple experimentation that generally results in feelings of guilt after the fire-related incident. In contrast, pathological behavior is deliberate and driven by anger or desire for revenge.²⁵

Kolko and Kazdin²⁵ found the highest risk of deviant fire-related behavior in children with relatively high levels of curiosity and anger. Children who scored high on curiosity were more likely to express interest in and have more contact with fire and were more likely to be described by parents as displaying both overt and covert signs of hostility and antisocial behavior. Those who scored high on anger had greater involvement with fire, engaged in more fire-related activity, such as hoarding of matches, and had incurred more fire-related community complaints. These children also demonstrated heightened knowledge about fire, often as a result of parental attempts to engage in fire preparedness, and education and were shown to have received milder forms of punishment than those who scored low on anger.²⁵

The implications of these findings, in conjunction with the work of Grolnick *et al.*,¹⁷ further solidify parental inaction as a precursor to increasingly devi-

ant firesetting behavior. However, children of relatively proactive parents (i.e., those who assign responsibility related to fire) also tend to be at higher risk for firesetting. Therefore, it seems that blatant inattention as well as incomplete or inappropriate fire education may be at issue when identifying relevant parental factors.

Correlational data notwithstanding, the most important factor in determining the risk of juvenile firesetting appears to be a history of firesetting. Kolko and Kazdin²⁶ found through parent and child measures that 75 percent of their sample who had been identified as firesetters in the past had continued to set fires. Hanson *et al.*²⁷ also found that the only variable significantly associated with current firesetting was previous firesetting.

Psychiatric Correlates

Conduct disorder is the most prevalent diagnosis in children and adolescents who engage in firesetting.^{9,19,27,28} Owing to the frequency with which juvenile firesetters meet the diagnostic criteria for conduct disorder, it is important to identify characteristics unique to firesetters.²⁸

In a comparison of firesetters and nonfiresetters, all of whom had been diagnosed with conduct disorder, Kolko *et al.*²⁹ found that parents of firesetters reported higher levels of delinquency, hyperactivity, and aggressive behavior in their children. In addition, firesetters were identified as having lower levels of social competence.

Similarly, in a comparison of firesetters and control subjects who had diagnoses of conduct disorder, Jacobson²¹ found elevated levels of social disinhibition. Firesetters exhibited a greater incidence of specific antisocial behavior that included lying, stealing, malicious destruction of property, running away, and sexual misbehavior. However, significant differences were not found between the groups for truancy, fighting, and violent assault.

Moore *et al.*¹⁵ compared the MMPI-Adolescent (MMPI-A) profiles of 28 male psychiatric inpatient firesetters with those of 96 male psychiatric inpatients without a history of firesetting. Those patients who set fires evinced substantially more pathologic behavior than nonfiresetters. Significantly elevated clinical scales included psychasthenia, schizophrenia, and mania, whereas elevated content scales included measures of depression, alienation, bizarre mentation, anger, conduct problems, problems at school,

and negative treatment indicators. Taken together, the authors surmised that the MMPI-A profiles of this group of firesetters indicated complex symptoms of internalizing as well as an increased likelihood of acting out.¹⁵

Forehand *et al.*³⁰ examined 36 incarcerated juvenile delinquents, all of whom had met the diagnostic criteria for conduct disorder. They found that although firesetters appeared to fall at the more severe end of an antisocial continuum, in this small sample, they were empirically indistinguishable from equally deviant counterparts who abstained from firesetting activity.³⁰

The concurrent symptomatology of children including enuresis, cruelty to animals, and firesetting, has long been held as a classic triad associated with deviant and/or aggressive behavior in adulthood.^{9,31,32} However, empirical research has been unable to support this contention consistently.^{9,12,33} Nevertheless, cruelty to animals appears to occur with some frequency in juvenile firesetters.^{15,19} The firesetter's selection of animals as another outlet for aggression is consistent with the notion that lack of assertiveness and indirectly expressed hostility are common features of this population.⁷

Aggressiveness, Shyness, and Rejection by Peers: Commentary on the Present Study

The present study⁸ is important, in that the authors propose a hypothetical model for firesetting in juveniles. The model proposes that those who are shy and aggressive have a greater propensity for fighting, rule breaking, and delinquency. This leads to rejection, which in turn leads to delinquency, including firesetting.

The use of a nationally representative sample of 17,747 youths makes this a particularly important study. As the authors acknowledge in their section on limitations, the use of the Youth Self-Report provides measures that are necessarily trite. This instrument cannot differentiate between types of firesetting, such as experimental playing with fire and intentionally destructive firesetting.

The authors demonstrate a 6.3 percent prevalence of firesetting in the past six months—an astoundingly high figure. Their hypothetical model is supported by the finding that for those with moderate or high levels of aggressiveness, shyness, and peer rejection, the adjusted odds ratio suggests a 13.1 times

higher likelihood that they will be involved in firesetting.

Anger and revenge are often seen as the common denominator in firesetting. This model is consistent with earlier broad findings, in that those with a pattern of anger represented by aggressive behavior appear to experience rejection, thereby seeking revenge.^{7,15,16,22,23,25,26} Firesetting seems to be one method of expressing this revenge, thereby gaining instant but short-lived power.

The ultimate goal of epidemiological research must be to identify the factors that allow us to understand better the mechanisms underlying the behavior. Elucidation of these factors will better equip us to design models of primary and secondary prevention. The results of this study suggest that if we can identify those with shyness and moderate-to-high levels of aggressiveness who are experiencing rejection by their peers, primary prevention could address these deficits at an early stage. Secondary prevention, although not the preferred option, involves the use of similar intervention in those who are identified as firesetters.

Sophisticated research of this nature helps us connect the links in the chain of understanding. Although the sophistication and complexity of the article by Chen *et al.*⁸ remind us that a full understanding of complex human behavior is difficult to attain, it is our opinion that the authors, in their commendable humility, underestimate the importance of their contribution to the body of knowledge in this area. Better understanding at an individual and group level can be used in designing treatment programs. Because many programs and institutions are already frequently required to tackle the problem of *de facto* firesetting in juveniles, this research educates and informs so that we can direct our attention to the prevention and treatment of this important social issue. We can only hope as clinical criminologists that further research in the form of prospective studies evaluating treatment programs will enhance our efficacy in the future. This article gives us further clues to the direction we should be taking, and for that we should be grateful.

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