

# THEORETICAL APPROACHES TO EXPLAINING DELIBERATE FIRESETTING BEHAVIOUR

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***Abstract:** Several frameworks for understanding arson have been offered, with some emphasising time-stable individual characteristics and others emphasising social or environmental forces. Predominantly, these explanations aim to identify risk factors that may be associated with an individual's propensity to light fires. However, a different view focuses on the links between social circumstances and enduring individual characteristics and suggests that the decision to offend depends on the interaction between these factors. In this paper theoretical explanations of firesetting behaviour will be examined. Evidence for three main frameworks will be briefly considered and the major implications of each for the study of deliberate firesetting will be explored.*

Various approaches to differentiating arsonists have been proposed with clear deficits in many (Doley, 2003). When these issues are examined further it is apparent that certain weaknesses may be attributed to the fact that to date there has been no definitive answer to the question of why people deliberately light fires. Several frameworks for understanding arson have been offered, with some emphasising time-stable individual characteristics (Bradford, 1982; Coid, Kahtan, Gault, & Jarman, 1999; Freud 1932; Gottfredson & Hirschi, 1990; Hirschi & Gottfredson, 1994; Kaufman, Heims, & Reiser, 1961; Linnoila, De Jong, & Virkkunen, 1989; LaGrange & Silverman, 1999; Macht & Mack, 1968; Moir & Jessel, 1997; Repo & Virkkunen, 1997; Virkkunen, De Jong, Bartko, Goodwin, & Linnoila, 1989), while others emphasise social (Bacon, Barry, & Child, 1963; Heimer, 1997; Pettitway, 1987) and / or environmental forces (Cohen, Felson, & Land, 1980, 1981; Cornish & Clarke, 1986, 1987; Nagin & Paternoster, 1993). In general, these explanations aim to identify risk factors that may be associated with an individual's propensity to light fires. An alternative approach emphasises the dynamic interaction between social circumstances and enduring individual characteristics. The functional analytic approach (Jackson, Hope & Glass, 1987) is an interaction-based model that arguably offers the most comprehensive account of arson behaviour to date. While other explanations of arson have focused exclusively on identifying antecedents to fire-setting (e.g., Fineman, 1995), the functional analytic approach also considers variables that serve to maintain and reinforce the behaviour. In the following discussion, three main approaches to explaining deliberate firesetting behaviour will be reviewed before the implications for understanding arson are considered.

## **Time-Stable Individual Differences**

The main tenant in this approach is that certain characteristics of the individual serve to predispose him or her to criminal behaviour. For instance, traits such as emotional instability, antisocial personality and impulsiveness, in association with lower intelligence levels, are considered to "incline individuals towards not

just criminal activities but a range of ‘reckless’ behaviours” (Nagin & Paternoster, 1993, p. 470) such as alcohol or substance abuse. Individuals with high impulsivity or lacking self-control are thought to be unable to commit to conventional activity and, consequently, are less likely to establish relationships, maintain employment, or persist in education and training activities. It is suggested that these individuals have less invested in their future and, accordingly, have less to lose in risking apprehension by committing an offence.

Gottfredson and Hirschi (1990) identify self-control as the central concept in their explanation of criminal propensity. This is similar to the notion of impulsiveness and represents an inability to defer gratification, inability to plan for the future, predilection for risk taking and a degree of self-centredness. Other authors have highlighted characteristics in addition to impulsiveness, including defiance, hostility, and a weak conscience, as being the main enduring traits in shaping criminal behaviour (Luengo, Carrillo-de-la-Pena, Otero, & Romero, 1994; Nagin & Paternoster, 1993). In general, explanations of arson that have focused on time-stable individual differences have tended to concentrate on one of four main characteristics: frustration of instinctual drives; poor social skills; presence of a psychiatric disturbance; or, evidence of neurophysiological disorder. These aspects are considered more fully below.

### **Psychodynamic Interpretation**

One of the earliest applications of the time-stable individual differences approach to arson is found in the psychodynamic explanation of deliberate fire lighting. Here it was hypothesised that a relationship existed between fire, enuresis and sexual desires (Freud, 1932). Later psychodynamic explanations of arson focused on other instinctual drives including aggression and anxiety to explain firesetting behaviour (e.g., Macht & Mack, 1968). Some support for the psychodynamic explanation has been reported in studies of juvenile firesetters. For example, Kaufman, Heims and Reiser (1961) interviewed 30 firesetting boys under the age of 17 years who all had significant histories of emotional disturbance. The authors found support for a psychodynamic explanation of firesetting for this sample. Kaufman et al. reported that over half the sample was enuretic and three quarters of the boys exhibited behaviours that the authors interpreted as evidence of uncontrolled instinctual drives, such as rage, hyperactivity, mutual masturbation and fellatio, exhibiting their genitals, and looking under women’s skirts. They concluded that these children exhibited oral fixations associated with disturbances of their libidinal and aggressive drives. Subsequent researchers have reported evidence of sexual dysfunction in further studies of arsonists (e.g., Hurley & Monahan, 1969; Lange & Kirsch, 1989; MacDonald, 1977). Nevertheless, a preponderance of research has failed to support the psychodynamic formulation.

In the most comprehensive study of arson to date, Lewis and Yarnell (1951) examined the psychosocial histories of 1145 adult male firesetters and found only 40 individuals reported sexual arousal associated with firesetting. More recently, a study of 243 male firesetters revealed only six people who derived sexual pleasure from setting or watching fire (Rice & Harris, 1991). Other researchers report no difference in sexual arousal patterns, as measured by phallometrics or reported sexual maladjustment, to fire-related stimuli between non-firesetter subjects compared with arsonists (Koson & Dvoskin, 1982;

Quinsey, Chaplin, & Upfold, 1989). Similarly, while some researchers have reported a link between enuresis and repeated firesetting (e.g., Kaufman et al., 1961), more recent work has failed to find a significant difference between arsonists and non-arsonists in incidence of enuresis (Bradford, 1982; Hill, Langevin, Paitich, Handy, Russon, & Wilkinson, 1982). Clearly, the evidence supporting a psychodynamic explanation of firesetting behaviour is limited.

### **Psychiatric Disorders**

Other time-stable individual differences theories focus on fire lighting as secondary to the primary symptoms of a psychiatric disorder (see Barnett & Spitzer, 1994). Geller (1992), for example, identifies schizophrenia, alcoholism, affective disturbances, intermittent explosive disorder and personality disorders as the more common disorders associated with deliberate fire lighting. Support for the notion of firesetting as primarily a symptom can be found in the numbers of arsonists that have a psychiatric diagnosis reported in various descriptive studies. In a review of the relevant literature Repo, Virkkunen, Rawlings and Linnoila (1997) determined 40 per cent to 60 per cent of arsonists are diagnosed with a personality disorder as well as having a history of alcohol or substance abuse, with approximately 15 per cent of arsonists suffering antisocial personality disorder specifically. In a study of 45 male firesetters aged 15 to 21 years, Repo and Virkkunen (1997) reported 65 per cent of offenders had a diagnosis of conduct disorder with aggressive features. Consistent with this pattern of co-occurrence, an earlier study of 36 firesetters referred for psychiatric assessment reported a psychiatric history of disorder for 60 per cent of the sample, while approximately 80 per cent had a history of alcohol abuse and 60 per cent of substance abuse (Puri, Baxter, & Cordess, 1995). Other researchers have also noted the co-occurrence of alcohol and drug abuse and / or psychiatric disorders with firesetting behaviour (Bradford, 1982; Coid, Kahtan, Gault, & Jarman, 1999; Linnoila, De Jong, & Virkkunen, 1989).

### **Neurophysiological Disorders**

Also consistent with the time-stable individual differences approach is the notion of deliberate firesetting as a symptom of an underlying biological disorder (Barnett & Spitzer, 1994). In a summary of research developments in the area of neurophysiological explanations of criminal propensity, Moir and Jessel (1997) note that in general offenders are psychologically atypical and that “there really is a mind to crime – indeed, different, identifiable minds to different, specific crimes” (p. viii). According to Moir and Jessel abnormalities that may be linked to criminality generally include brain dysfunction due to hormone or chemical imbalances, brain damage, and innate neurophysiological functioning differences that exist between men and women. In terms of arson specifically, chromosomal disorders such as Klinefelter’s syndrome, as well as conditions such as epilepsy and hypoglycaemia, have been associated with firesetting behaviour (Geller, 1992; Pontius, 1999). Researchers have also identified a link between psychobiological factors and firesetting (e.g., Repo & Virkkunen, 1997; Virkkunen, De Jong, Bartko, Goodwin, & Linnoila, 1989). Indeed, one study of 36 firesetters noted 28 per cent had a history of head injury or other relevant medical incident that may account for their firesetting behaviour (Puri et al., 1995).

### **Summary**

While acknowledging the influence of situational factors, the time-stable individual differences approach to explaining criminal behaviour views them as secondary to the influence of individual characteristics on deliberate firesetting. However, with the possible exception of psychodynamic theory which attempts to account for arson in terms of frustrated instinctual drives, these discussions tend not to be formulated into a theory of arson. Rather, explanations of arson under this paradigm have been limited to identifying specific psychosocial characteristics of the individual associated with firesetting, with only limited attempts made to explain how the characteristic impacts on the decision making process involved in offending. Thus, the approach overall fails to account for the proportion of individuals who commit fire related offences but who do not have one or more of the characteristics identified as being associated with firesetting behaviour. It also does not explain those individuals who do have one or more of the identified characteristics but who do not offend. In summary, this approach fails to identify that element which deflects some individuals from deliberate firesetting.

### **Social / Environmental Theories**

The influence of specific social and environmental factors on the decision to offend is the primary concern of explanations that fall within the social / environmental category of criminological theory. Theories of criminal opportunity and rational choice, for example, focus on offence related features such as an individual's familiarity with the surroundings and the accessibility of the target (Nagin & Paternoster, 1993). The focus is on features that differ across offences, rather than across offenders, as central in shaping the decision to offend (Cohen et al., 1980, 1981; Cornish & Clarke, 1986, 1987).

Other paradigms emphasise the relationship between interactions with peers and family and offending behaviour. Heimer (1997) notes that "through interacting with others, youths learn techniques for engaging in delinquency and learn definitions of the law, which include attitudes, norms, beliefs, and rationalisations about lawbreaking" (p. 805). The beliefs that develop are considered central to the decision making process when the individual is subsequently presented with the opportunity for crime. Support for this hypothesis is found in studies demonstrating a link between delinquent behaviour and various family variables, such as harsh discipline, little positive parenting involvement, and an absent father-figure during childhood (Bacon et al., 1963).

The social and environmental aspects of offending have been considered in explanations of arson. Pettiway (1987), for example, examined Fire Department files of 377 individuals arrested for arson during the period 1978 to 1979 across one locality in America. He extracted demographic information and details about the stated or assumed motive as well as location of the offence. Using census data the residential locations of the arsonists were matched to their appropriate census tract. Each census tract was characterised by certain socioeconomic, demographic, and housing features. Bivariate analysis found environment to be more important than age or race in distinguishing between different 'types' of firesetters such as retaliatory versus non-retaliatory arsonists. Subsequently, Pettiway hypothesised that, in comparison with residents of middle to upper socioeconomic areas, residents of lower socioeconomic enclaves are more likely to perceive that authorities are

unresponsive to their problems. Based on previous findings concerning the function of retaliatory crimes, he suggested that these residents are also less likely to have appropriate persuasive skills to successfully influence their environment. Consequently, these individuals tend to resort to crimes of self-help, including firesetting, to resolve their problems.

These findings were framed in terms of social learning theory. This perspective postulates that behaviour is learned through interactions with family and peers, and that firesetting is a form of learned aggression (Macht & Mack, 1968; McKerracher & Dacre, 1966; Vreeland & Levin, 1980). Within this paradigm firesetting is postulated to occur “because youngsters learn the behavior; that is, they may observe it, imitate it, model it, and perhaps even be rewarded for it” (Gaynor, 1996, p. 598). Stewart for example, found that many arsonists reported the idea to set a fire originated from having fathers who were firefighters, knowing someone who had set a fire, or recently seeing a movie or reading a book that featured fire (1993, p. 252). Evidence supporting a social learning explanation of arson is provided by studies demonstrating that difficulties in family dynamics, poor interpersonal relations, and factors such as lack of adequate parental supervision and discipline, are linked to deliberate firesetting (e.g., Barker, 1994; Barnett & Spitzer, 1994; Blackburn, 1993; Geller, 1987; Hollin, 1989; Inciardi, 1970; O’Sullivan & Kelleher, 1987; Prins, 1995; Rice & Harris, 1991).

There is, however, relatively limited empirical support for this approach as an explanation of arson. While the association between dysfunctional family backgrounds and delinquent behaviour has been well established (see Farrington, 1996), lacking in this approach is an explanation for why firesetting appears in the criminal careers of some offenders and not others. The interaction between these antecedent risk factors and arson is yet to be made explicit. Furthermore, according to social learning theory, deliberate firesetting behaviour is reinforced through peer support and incidents of undetected arson. However, the link between these features and recidivism in firesetting has thus far not been clearly identified.

### **Summary**

Social and environmental explanations of arson suggest that the surrounding environment influences the development of belief systems that support offending generally, while interactions with family and friends promote the acquisition of deliberate firesetting as a form of learned aggression. Relatively little research has investigated the specific links between social and environmental factors associated with arsonists and firesetting behaviour. As a consequence, the theory fails to fully account for the development and maintenance of firesetting behaviour in some individuals.

### **Interaction Theories**

An alternative perspective combines key features of the previous theories to present arguably a more holistic view of the path to deliberate firesetting. Interaction theorists attempt to more explicitly define interactions between characteristics of the individual and features of the social environment that are considered integral to the decision to offend. Within this perspective there are two main approaches that consider firesetting specifically. Dynamic-behaviour theory focuses on developmental aspects of firesetting, while the functional

analysis model offers an explanation not only for the development, but also the maintenance, of the behaviour.

### **Dynamic-Behaviour Theory**

Dynamic-behaviourists have been unable to provide a definitive list of psychosocial characteristics involved in firesetting. However, a consensus of sorts has been achieved in terms of identifying at least the broad domains that these variables fall within, which are: (a) personality and individual characteristics (i.e., demographics, intelligence, emotional style, behaviour features); (b) family and social characteristics (i.e., peer relationships, school performance, family variables); and (c) immediate environmental features (i.e., antecedent events that trigger firesetting). Many of the characteristics identified in these categories have been highlighted in other explanations of firesetting but the important feature here is that all of these variables can be observed and measured to confirm or reject their association with firesetting behaviour.

Dynamic-behaviour theory goes beyond other explanations by attempting to define the specific variables that lead to firesetting. In contrast to individual differences and social / environmental approaches, dynamic-behaviour theory does not assume that one factor (i.e., instincts or social environment) alone predicts firesetting. Rather, it attempts to distinguish the range of variables and the interaction between them that will predict the occurrence of firesetting behaviour. For instance, by studying the characteristics and behaviour of children who set fires Fineman (1995) identified two groups: non-pathological firesetters, who set fires primarily out of curiosity; and pathological firesetters, who set fires with malicious or criminal intent. He concluded it is the later group that poses the more significant problem to the community in terms of their fire lighting behaviour. He modelled his formulation of firesetting on the characteristics of this group and outlined a fourteen-step scenario describing the cognitions, emotions and behaviours postulated to accompany a firesetting event.

Fineman (1995) proposed that pathological firesetters tend to display a propensity for a variety of antisocial behaviours, including firesetting. An initial interest in fire is sparked in childhood when an individual experiences inadequate parental supervision with respect to fire or, alternatively, has been severely punished for involvement with fire. These early experiences with fire may act to draw the individual to firesetting as if to the proverbial “forbidden fruit”. Moreover, as a result of encountering poor role models during childhood these individuals fail to develop the necessary skills to enable them to deal adequately with the stresses and strains of daily life. In the absence of appropriate assertive behaviours these individuals are hypothesised to turn to firesetting as an effective means of expressing anger or distress when a crisis or trauma occurs.

Within this framework, therefore, firesetting behaviour is viewed “as an interaction between dynamic historical factors that predispose the firesetter toward a variety of maladaptive and antisocial acts, historical environmental factors that have taught and reinforced firesetting as acceptable, and immediate environmental contingencies that encourage the firesetting behavior” (Fineman, 1995, p. 42). Based on this model, Fineman has also developed a structured interview format designed to assess the firesetter for risk of future fire-related

dangerousness and likelihood of re-offending. The assessment, however, relies heavily on the individual's ability to be aware of and to articulate the range of feelings and cognitions involved in their firesetting behaviour. The risk factor is calculated on the extent to which specified characteristics are present in the individual's psychosocial history. These assessments require data to be clinically weighted according to perceived risk of ongoing firesetting behaviour but no clinical norms are provided to support the assessor's weightings.

Dynamic-behaviour theory is not only the first model that attempts to define the variables that predict firesetting behaviour; it is also the first to provide a framework for predicting levels of firesetting behaviour based on the age of the firesetter and severity of the firesetting behaviour (Gaynor, 1996, p. 598). However, while it goes part of the way towards offering a more detailed explanation of the variables involved in firesetting it is limited in several respects.

First, to date dynamic-behaviour theory has primarily been applied to the issue of juvenile firesetting. Although Fineman (1995) notes that adult firesetters tend to have a history of firesetting as children and describes individual case studies of adult arsonists, the application of his model to adult arson behaviour has yet to be empirically tested. A second but related point is that the dynamic-behaviour model, in being applied mainly to juveniles, does not adequately address the issue of recidivism in firesetting. Younger (16 to 25 years old) arsonists appear most commonly in the literature, however this may be an artefact of a lack of criminal experience and resources, which leads to these individuals being over represented in the criminal justice system. In general, arson is committed most often by adolescents but, with a recorded age range of 4 to 73 years, clearly it is a crime that is accessible at any age (Baker, 1994). Dynamic-behaviour theory, therefore, offers a useful framework for empirically exploring the link between firesetting behaviour and those psychosocial variables thought to predict firesetting, but it is currently limited to the study of firesetting juveniles.

### **Functional Analysis Theory**

Functional analysis theory, as it has been applied to firesetting, is comparable in many respects to the dynamic-behaviour model. This is particularly so in the range of psychosocial stimuli hypothesised to predispose an individual to firesetting. These include psychosocial disadvantage, ineffective social interactions, previous experience with fire, and emotionally significant events triggering onset of a firesetting episode (Jackson, Glass & Hope, 1987). Where it varies from the dynamic-behaviour approach is in offering both a predictive model and an explanation for the re-occurrence of the behaviour.

Within the functional analytic paradigm, arsonists are viewed as basically ineffective individuals who are unable to satisfy their emotional and social needs through appropriate behaviours. Firesetting is regarded as an attempt by the individual to exert some control over their environment when other behaviours have been tried and have failed to produce the desired change. The sense of mastery and control they achieve through their firesetting behaviour contributes to maintaining their involvement in deliberate firesetting. Therefore, the role reinforcement plays in maintaining firesetting behaviour is clearly

articulated in this theory and enables this model to be applicable to serial arsonists.

Support for the hypothesised association between firesetting and psychosocial disadvantage is found in reports describing the dysfunctional family backgrounds of many arsonists (Blackburn, 1993; Geller, 1987; Hollin, 1989; Inciardi, 1970). The correlation between a history of social deprivation, family psychiatric or criminal history, childhood adversity including physical and / or sexual abuse, and a high rate of behaviour disorders among arsonists has been well documented (Bland, Mezey, & Dolan, 1999; Bourget & Bradford, 1989; Bradford 1982; Jackson, Hope, & Glass, 1987; Joukamaa & Tuovinen, 1983; Leong, 1992; Rix, 1994; Stewart, 1993). Estimates of the prevalence of mental illness in firesetters vary from between 10 per cent to over 60 per cent (Barnett & Spitzer, 1994). There is also substantial evidence in the literature that, as well as being generally psychiatrically disturbed, many arsonists suffer specifically from depression, low self-esteem and / or practice self-harming behaviours including self-mutilation, suicide attempts and / or substance abuse (Coid, Wilkins, & Coid, 1999; Puri et al., 1995; Repo 1998). Finally, researchers have noted specifically that arson offenders are frequently socially inept, often experiencing difficulties in interpersonal relations, including mal-adjustment across a range of life domains such as education, employment, peer and personal relations (Bradford, 1982; Harris & Rice, 1984; O'Sullivan & Kelleher, 1987; Vreeland & Levin, 1980).

Many of these psychosocial variables though are common among offenders generally. For example, Hurley and Monahan (1969) compared a sample of 50 arsonists with a group of 100 randomly selected inmates of a psychiatric institution from the same institution across a range of demographic and psychosocial variables. They found 54 per cent of the arsonist group compared with 38 per cent of the non-arson group evidenced significant pathological features in their family home. This included one or both parents being alcoholic, absent father or mother (or both), criminal or psychiatrically disturbed parents, and harsh or inconsistent discipline. They also reported that the arson group demonstrated significant mal-adjustment in terms of social isolation, marital and sexual difficulties, and poor occupational history. However, the extent of psychosocial dysfunction experienced by arsonists did not differ significantly from that experienced by other offenders in the sample. Furthermore, arsonists showed no specific differences from other offenders in psychiatric history and general criminality, although they did tend to commit slightly more offences of property damage and less false pretences.

In a more recent study, Rice and Harris (1991) studied 243 adult male arsonists held in a maximum-security psychiatric hospital and compared them across various demographic and psychosocial history variables with a group of 100 randomly selected patients admitted to the same institution for behaviours other than firesetting. A similar pattern of early (i.e., before 16 years old) institutionalisation (e.g., placed in an orphanage, psychiatric care, or training school) to that reported in other studies was found for the arson group. Discriminate analysis revealed significant differences between the two groups particularly in the areas of social competence and social isolation. Firesetters were found to be more socially isolated, less aggressive, and have more psychiatric problems than mentally disordered offenders generally. However,

arsonists were as likely as the control group to have a history of poor academic achievement, familial dysfunction including abuse, and parental psychiatric history.

Other researchers have also highlighted similarities between arsonists and other mentally disordered individuals. Tennent, McQuaid, Loughnane, & Hands (1971) compared 56 female firesetters admitted to a psychiatric institution with a matched sample of patients admitted for non-fire-related behaviour. No significant difference between the two groups on the range and extent of psychiatric diagnosis, history of psychotic episodes, suicide or self-mutilation behaviours were found. More recently, Stewart (1993) studied 28 female arsonists and 28 female controls admitted to prison. She found arsonists were more likely to be single and childless than were the women in the control group. However, contrary to earlier research findings, Stewart reports the arsonists were less socially isolated than were the controls. Approximately 44 per cent of the control group reported that they had no friends compared to 18 per cent of the arson sample. She notes, nevertheless, that both offender groups are significantly socially maladjusted compared to the non-clinical community population, which has an estimated 11 per cent of individuals who may be considered socially isolated.

These apparently contradictory results blur the boundaries between arsonists and other types of offenders. This makes it necessary to distinguish those factors that direct an individual towards firesetting in particular. Within the functional analytic framework these are hypothesised to include previous fire experience (especially when associated with a significant emotional event) and the inhibition of alternative behaviours. Firesetting behaviour is triggered by an emotionally significant event, which leads to a desire to change the situation. A perceived or real inability to effect that change is also considered an important factor in the process (Jackson, Glass & Hope, 1987).

The feature that sets the functional analytic approach apart from other explanations of arson is its attention to the consequences that serve to reinforce and maintain the behaviour. These may include such things as punishment (which can drive the behaviour into greater secrecy), attendance by emergency services, peer support and changes to environmental conditions (i.e., therapy is ordered). Consequences can therefore include both positive and negative reinforcement. The type of reinforcement has been suggested to be related to the likely outcome of treatment, with firesetting undertaken for external reinforcement (i.e., arson for profit) and internal cognitive reinforcement (i.e., arson for peer attention) more easily treatable than arson undertaken for internal sensory (i.e., arousal) reinforcement (Fineman, 1995, p. 37). In focusing on this feature the model attempts to account for recidivism in arson offending, an aspect that has not been adequately addressed in other arson explanations. This approach does, however, have limitations.

The functional analytic paradigm is clearly more suited to the analysis of firesetting behaviour in older adolescents and adults than in young children because it endeavours to account for the re-occurrence of the behaviour - an offending pattern more often seen in older groups. Further, possibly because of its focus on recidivism, it neglects an explanation of the developmental aspects of arson and therefore does not provide a predictive model of levels of

firesetting as Fineman (1995) has attempted to do. Finally, like many of the explanations of arson that have preceded it, the functional analytic paradigm suffers from a lack of direct empirical testing. The model has been largely developed on the basis of the authors' accumulated clinical experiences and requires further empirical testing of the proposed hypotheses. Apart from the originating study (Jackson, Glass & Hope, 1987) an extensive review of the anglophonic arson literature has discovered only one other empirical study that applied functional analysis to arson and this was done in a post-hoc explanation of the data (Stewart, 1993). Moreover, research is still developing that identifies the specific person, social and environmental factors that significantly predict firesetting behaviour. More information is required about how the independent variables interact to develop a clearer understanding of their relationship to firesetting.

### **Conclusion**

In order to provide a comprehensive account of the behaviour, it is important for a theory of arson to not only be able to explain why an individual is initially drawn to fire, but also to be able to explain why an individual continues to light fires. In this sense, questions about recidivism in firesetting and what causes individuals to desist from this behaviour (if in fact they do) are as informative as the question of why an individual might begin to set fires in the first place. Theories within the time-stable individual differences approach describe some of the factors associated with firesetting but offer no clear explanation for the link between the behaviour and the antecedent variables nor do they address the issue of arson recidivism. Social and environmental theories offer a descriptive account of the variables linked to firesetting behaviour, but provide limited information on how these variables interact. In addition, as with the time-stable individual differences approach, this framework does not specifically account for arson recidivism.

It appears, therefore, that interaction models may offer the most promising explanation of arson. Dynamic-behaviour theory is the first model that attempts to define the variables that predict firesetting behaviour as well as to provide a framework for predicting levels of firesetting behaviour in children. However, this model focuses on firesetting in juveniles and, similar to previous approaches, is limited by not addressing the issue of recidivism in firesetting. The functional analytic model of recidivistic arson, on the other hand, identifies the antecedent events that direct an individual towards firesetting, the behaviour features associated with the act, and the consequences that serve to reinforce and maintain the behaviour. It therefore extends existing approaches by offering both a predictive model and an explanation for the re-occurrence of the behaviour. Clearly, there are generalisations and a certain lack of clarity within this theory, as could be argued with any multivariate approach. This is possibly more so because the model suffers from the same lack of empirical testing that has limited other approaches to this issue. Nevertheless, this paradigm may well offer the most comprehensive explanation of adult firesetting behaviour to date.

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