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Female Arsonists: Key Features, Psychopathologies, and Treatment Needs

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Abstract

Female-perpetrated arson is a topic that has received relatively little research attention from either psychiatrists or psychologists. In this review, available research regarding the characteristics, psychopathologies, and current treatment efforts with female arsonists is reviewed. Evaluation of current research with female arsonists suggests that very few researchers have compared female arsonists either to suitable female offender control groups or male arsonist comparisons. Consequently, clinical knowledge and practice regarding female-perpetrated arson is underdeveloped relative to both other areas of forensic-clinical psychiatry, and knowledge of male arsonists. Suggestions are made for translating current research into arson interventions with female arsonists. Core arenas for future treatment and research provision are also highlighted.

Key Words: Arson; Female; Firesetting; Treatment

The fundamental motives and psychopathology underlying acts of arson have always been a topic of great fascination for psychiatrists and psychologists required to assess and treat arsonists. Possibly the most elusive of all topics concerns the key features and characteristics of *female* arsonists. In particular, it is currently unclear whether female arsonists warrant differential assessment or treatment initiatives from their male counterparts. To date, review articles that focus on arson either neglect to discuss female arsonists altogether (Gannon & Pina, 2009), or provide only limited descriptions of female arsonists (Barnett & Spitzer, 1994; Blumberg, 1981; Smith & Short, 1995). Thus, the aim of this review is to provide psychiatrists and other clinical practitioners with an overview of the features, pathologies, and treatment needs relevant to female arsonists. In line with general legal definitions, the term “arson” will be used to describe acts of firesetting that are both deliberate and unlawful (Federal Bureau of Investigation, 2004; Hall, 2007).

The Scope of Female Arson

Interestingly, scholars from the late 19th and early 20th centuries believed that arson was a female-dominated act perpetrated by young domestic females as a form of objection or protest (Barker, 1994; MacDonald, 1977). Today, however, the available evidence suggests that arson is a crime predominantly undertaken by *male* perpetrators (Bourget & Bradford, 1989; Steffensmeier & Allan, 1996; Soothill, Ackerley, & Francis, 2004; Vreeland & Levin, 1980). For example, research shows the proportion of female arsonists to be as low as 4% (Soothill & Pope, 1973) and as high as only 28% (Puri, Baxter, & Cordess, 1995). Nevertheless, researchers estimate that the proportion of female arsonists falls somewhere in between these extreme estimates in the region of about 14% (Bourget & Bradford, 1989; Stewart, 1993). It is unclear why the proportion of female to male arsonists is so low. Generally, however, this disparity is hypothesized to stem from societal tendencies to treat female criminals comparatively leniently relative to their male counterparts (Bradford, 1982; Smith & Short, 1995; Tennent, McQuaid, Loughnane, &

Hands, 1971). Nevertheless, even if one assumes that female arsonists make up only 14% of arson referrals; this represents a substantial number of individuals who require adequate assessment, diagnoses, and treatment.

Methodological Caveats

It is incredibly difficult to pinpoint the exact features characteristic of female arsonists. The primary reason for this is a notable dearth in both the *quantity* and *quality* of empirical studies conducted in relation to female arson. An extensive search of the arson literature (limited to English Language) using the *PsychINFO*, *PubMed*, and *Web of Science* electronic databases and the key search terms ‘arson* AND female’, ‘fireset* AND female’, ‘pyromania AND female’ yielded only 13 empirical articles dedicated to the topic of female arson (including juvenile arson). Extensive searches of empirical article reference lists were also undertaken which yielded a further 4 articles. Of all the articles discovered using these multiple search strategies, many focused solely on female arsonists to the exclusion of adequately matched female comparison groups or male arsonists ($n = 8$). Because of this clear caveat, this review also draws on studies that include female arsonists amongst larger cohorts of male arsonists.

Key Features

Sociodemographic

Research suggests that female arsonists who come to the attention of professionals tend to be similar to other female offenders on factors such as Caucasian ethnicity (Noblett & Nelson, 2001; Puri et al., 1995), low average IQ (Noblett & Nelson, 2001; Stewart, 1993; Tennent et al., 1971), poor education, and low socio economic status (Harmon, Rosner, & Wiederlight, 1985; Stewart, 1993; Tennent et al., 1971; Wachi et al., 2007). Similarly to other offending females (see Noblett & Nelson, 2001), the mean age of female arsonists reported in the literature tends to range from the mid 20s (Bourget & Bradford, 1989; Tennent et al., 1971) to the late 30s (Wachi et al., 2007). Furthermore, the sociodemographic factors described here are not notably different from those reported in

male arsonists (Bennett & Hess, 1984; Rice & Harris, 1991; Ritchie & Huff, 1999; Rix, 1994).

Offence Specificity

A number of researchers have examined whether females *only* engage in arson, or whether they hold more pervasive and generalized patterns of offending (Harmon et al., 1985; Rix, 1994; Stewart, 1993; Tennant et al., 1971; Wachi et al., 2007). Harmon et al. (1985) found that just over half of 27 female arsonists referred for US psychiatric evaluation, had *at least* one prior arrest on record. One third of these arrests (33%) related to *aggressive* assaults¹. However, the nature of the remaining arrests was not reported. In a later study, Stewart (1993) reported that similarly to comparison female offenders, just over a third of her UK imprisoned female arsonists held at least one previous conviction on record. Stewart also noted that “among the total population, over half had been charged or convicted of crimes of violence” (p. 249), yet it is unclear how the arson and comparison group compare on previous violence convictions. Tennant et al. (1971) reported that their female arsonists ($N = 56$) had engaged in significantly less interpersonal aggression relative to matched offending patients (32% versus 91% respectively) although they do not detail how previous interpersonal aggressive behavior was determined. In a more recent study of 83 female Japanese recidivist arsonists, Wachi et al. (2007) found that 19% ($n = 16$) had previously been arrested for theft and 2% ($n = 1$) for fraud. Thus, none of these women exhibited any previous arrest history for violence.

In summary, available research suggests that female arson is part of a wider criminal repertoire of offending. In the male arson literature, research has shown that male arsonists' previous offence histories are similar to that of property offenders (see Hill et al., 1982) and female arsonists *may* be similar in this regard (Tennant et al., 1971; Rix, 1994). However, the research is still a little unclear on this issue.

Key Pathologies

¹ Excluding offenders who committed multiple types of prior offence.

Developmental Pathology

Adversarial developmental experiences are hypothesized to account for childhood and adult psychopathologies. Numerous professionals have noted that female arsonists' developmental experiences are characterized by physical, emotional, and sexual abuse, neglectful parenting, separation from one or both biological parents, and a labile family environment (Dickens et al., 2007; Harmon et al., 1985; Hickle & Roe-Sepowitz, in press; Lewis & Yarnell, 1951; Noblett & Nelson, 2001; Saunders & Awad, 1991; Stewart, 1993; Tennent et al., 1971). Such characteristics, on first glance, are similar to those documented in male arsonists or other female offenders (Bennett & Hess, 1984; Blanchette & Brown, 2006; Bradford, 1982; Lewis & Yarnell, 1951; Puri et al., 1995). For the few studies that have compared female arsonists to other female offenders, two main findings are evident. First, female arsonists are more likely to have been separated from one or both biological parents during their childhood (Stewart, 1993; Tennent et al., 1971). Second, female arsonists are more likely to report having experienced early sexual experiences and/or sexual abuse as children (Noblett & Nelson, 2001; Stewart, 1993; Tennant et al., 1971). There is a paucity of published research directly comparing the developmental experiences of male and female arsonists. However, research suggests that female arsonists are likely to hold a history of child sexual abuse relative to male arsonists (Dickens et al., 2007). Wider research also suggests that female offenders generally experience more pervasive developmental abuse relative to males (Blanchette & Brown, 2006; Daly, 1994). Table 1 outlines the key features that the research evidence suggests differentiates female arsonists from their male counterparts.

Psychopathology

Pyromania. A key psychopathology often associated with arson is *pyromania*. The DSM-IV-TR (American Psychiatric Association; APA, 2000) classifies pyromania under the rubric of impulse control disorders not otherwise specified. The criteria required in order

to establish a diagnosis of pyromania is reliant on establishment of the following criteria: (i) intentional and repeated firesetting, (ii) tension or arousal prior to firesetting, (iii) fascination with fire and its associated consequences or paraphernalia, and (iv) enjoyment, satisfaction, or relief associated with witnessing or partaking in firesetting activities. Finally, in order to reach a diagnosis of pyromania each of the following firesetting motivators must be ruled out: economic gain, socio-political ideology, concealment of criminal activity, anger or revenge, or intended improvement of residential circumstances. The firesetting activity should also not be the by-product of any impaired judgment (i.e., delusions, hallucinations, intoxication, dementia, or mental retardation), or be better explained by a psychiatric diagnosis of conduct disorder, mania, or antisocial personality disorder. In other words, a diagnosis of pyromania is reserved only for those individuals who exhibit an intense preoccupation with fire itself to the exclusion of all other motivating factors.

Within DSM-IV-TR (APA, 2000), the prevalence of pyromania is documented as being “apparently rare” (p. 614). Researchers have, indeed, found very little evidence of pure pyromania in cohorts of either male or female arsonists (Dickens et al., 2007; Leong, 1992; O’Sullivan & Kelleher, 1987; Prins, Tennent, & Trick, 1985; Ritchie & Huff, 1999). For example, some researchers have been unable to identify any evidence of pyromania (Geller & Bertch, 1985; Harmon et al., 1985; Leong, 1992; O’Sullivan & Kelleher, 1987), or have detected only very low levels of pyromania (i.e., 6.6% - Bourget & Bradford, 1989).

Interestingly, within the DSM-IV-TR (APA, 2000), and arson commentaries (e.g., Mavromatis, 2000; Moore & Jefferson, 2004), pyromania is described as being less prevalent in females relative to males at a rate of approximately 1:2 (DSM-IV-TR; APA, 2000; Howell & Watson, 2005). While the information provided in DSM-IV-TR is obtained from extensive literature searches (see Hartung & Widiger, 1998); the basis of this conclusion is unclear. Some studies have found *no* evidence of pyromania in either males or females (Geller & Bertch, 1985; Leong, 1992; O’Sullivan & Kelleher, 1987), others have reported a slightly higher prevalence of pyromania diagnoses or features in males relative to

females (i.e., Dickens et al., 2007 [32.6% versus 13.2%]; Lochner et al., 2004 [3% versus 0%]), while others still have reported slightly higher pyromania diagnoses in females relative to males (Grant, Williams, & Potenza, 2007 [12.5% versus 0%]). Nevertheless, a characteristic of all of these studies is unrepresentative and/ or very small sampling populations alongside variable operational definitions of pyromania.

General psychopathology. It is certainly not unusual for psychiatrists and other professionals to note the presence of more general psychopathologies in female arsonists that fit core diagnostic criteria (Barnett & Spitzer, 1994; Bourget & Bradford, 1989; Harmon et al., 1985; Leong, 1992; Stewart, 1993; Taylor, Robertson, Thorne, Belshaw, & Watson, 2006; Tennent et al., 1971). Commonly documented diagnoses associated with female arson are *schizophrenia* (Harmon et al., 1985; Leong, 1992; Stewart, 1989; Tennent et al., 1971), *affective disorders* (Bourget & Bradford, 1989; Dickens et al., 2007; Stewart, 1989; Tennent et al., 1971), and *substance abuse* (Bourget & Bradford, 1989; Harmon et al., 1985; Stewart, 1989). Only a handful of studies, however, analyze the presence of psychopathologies in female arsonists and adequately compare these results to other relevant subgroups (i.e., male arsonists or other female offenders). Tennent et al. (1971) compared UK inpatient female arsonists with inpatient female comparisons on diagnosed psychopathologies recorded over a retrospective five year period. Both groups appeared to hold similarly high levels of diagnoses for schizophrenia (around 30%) and similarly low levels of depression (around 9%). Psychosis was also more likely to be reported by arsonists, but was not reported as being *significantly* higher to that reported by the female inpatient comparisons (52% versus 39% respectively). In a similar study, Bourget and Bradford (1982) failed to differentiate psychiatrically referred female and male arsonists on general psychiatric diagnoses. However, other researchers, who have compared male and female arsonist psychiatric referrals, have found that female arsonists are more likely to

hold diagnoses of depression or psychosis² relative to their male counterparts (Bradford, 1982; Dickens et al., 2007; Rix, 1994). Finally, in a recent Swedish study, Enayati, Grann, Lubbe, and Fazel (2008) compared psychiatrically referred female and male arsonists (total $N = 214$; 28% female) with violent offender psychiatric referrals on diagnoses of psychiatric disorders (according to DSM-IV). No statistically significant differences in prevalence of Axis I or II disorders across male and female arsonists were detected. However, female arsonists held more learning disability diagnoses (8.5%) and alcohol use disorder (25.4%) relative to non-arsonist female offenders (2.6% and 14.4% respectively). Nevertheless, in all of the above mentioned studies, groups were sampled from psychiatric services.

Stewart (1993) compared female arsonists and comparison female offenders from a UK prison on psychiatric diagnoses obtained via file and self report interview. Stewart found that both groups were also identified as having similarly high levels of diagnoses for *substance abuse* (44.4% of arsonists and 46.4% of comparisons), *depression* (37% of arsonists and 28.6 % of comparisons), and *schizophrenia* (33.3% of arsonists and 25% of comparisons). Thus, at least in this study, female firesetters appeared to hold similarities in both frequency and type of psychiatric diagnoses to other female offenders.

In summary, there is very little adequately controlled research examining the psychopathological characteristics of female arsonists. However, what does exist suggests that female arsonists do not appear to notably differ from other female offenders, although they may hold higher levels of depression and psychoses relative to male arsonists.

Personality Disorder. Given the impoverished and abusive developmental contexts characteristic of female arsonists, it could be hypothesized that female arsonists may display problematic personality traits that will impact negatively on adult interpersonal functioning (see Ainsworth, 1989; Bowlby, 1969, 1973). It is not uncommon for professionals to note the presence of *personality disorder* in female arsonists (e.g., Bourget &

² Cf. Lewis and Yarnell (1951).

Bradford, 1989; Coid, Wilkins, & Coid 1999; Harmon et al., 1985; Tennent et al., 1971; Rix, 1994). Borderline personality disorder, and antisocial personality disorder—in particular—appear to represent diagnoses most commonly noted for female arsonists (Coid et al., 1999; Harmon et al., 1985) and, interestingly, research suggests that the etiology of self harming behavior and firesetting may share a common basis in females diagnosed with borderline personality disorder (Coid, 1993; Miller & Fritzon, 2007).

The research examining the prevalence of personality disorders in female arsonists is particularly scant and lacking in detail. For example, Bourget and Bradford (1989) reported that over half of their female arsonist psychiatric referrals (58.3%; $n = 7$) were diagnosed with a personality disorder compared with under half of their male arsonist psychiatric referrals (40.8; $n = 31$). However, although the authors state that—for females—personality disorder should be regarded, “an underlying factor in this type of behavior [i.e., arson]” (p.298), it is unclear whether personality disorder diagnoses were *significantly* more prevalent in their female arsonist sample relative to their male arsonist sample. Furthermore, Bourget and Bradford (1989) do not provide an explicit breakdown of the exact subtypes of personality disorder for each of the male and female samples. Rix (1994) appeared to find fairly equal amounts of personality disorder in their male and female arson referrals (i.e., just over half of each sample held a personality disorder diagnoses). However, similarly, it is unclear exactly how these samples compare, statistically, on *type* of diagnoses. Coid et al. (1999), in their examination of UK female prisoners with a self harming history found that females who had set fires held similar levels of borderline personality disorder diagnoses to females who had not set fires. However, Coid et al. also noted that the females who had set fires were significantly more likely to hold a diagnoses for antisocial personality disorder relative to their non-firesetting counterparts (76%; $n = 19$ versus 24%; $n = 12$ respectively).

In studies examining interpersonal traits, female arsonists exhibit passive personality traits and low self worth relative to other female offenders (Noblett & Nelson,

2001; Stewart, 1993). Furthermore, although female arsonists appear not to differ from other female offenders on aggressive personality traits (Noblett & Nelson, 2001), female arsonists do appear to be significantly more likely to endorse traits of neuroticism relative to both female offender and non offender comparisons (Tennent et al., 1971). Such traits may increase the likelihood of an individual using fire to gain control in their negative or uncontrollable environment (see Jackson, Glass, & Hope, 1987).

Neurobiological Disorder. One factor that holds some promise for understanding impulsive acts of arson is neurobiological disorder taking the form of poor cerebrospinal fluid monoamine metabolite concentrates (i.e., 5-hydroxyindoleacetic acid [5-HIAA] and 3-methoxy-4-hydroxyphenylglycol [MHPG]; Virkkunen, Goldman, Nielsen, & Linnoila, 1995; Virkkunen, Nuutila, Goodwin, & Linnoila, 1987). For example, Virkkunen et al. (1987) have found that male repeat arsonists hold relatively impoverished levels of 5-HIAA/MHPG in relation to violent offender and non offender controls. Similar findings pointing to a link between low levels of 5-HIAA and male arson have also been reported by Virkkunen, De Jong, Bartko, Goodwin, & Linnoila (1989), and low 5-HIAA, in particular, is generally associated with various antisocial and violent behaviors (see Berman, Tracy, & Coccaro, 1997 or Moore, Scarpa, & Raine, 2002). This link, however, is still poorly understood although researchers hypothesize that serotonin reductions lead to general increases in impulsivity and antisocial risk taking (Moore et al., 2002). From the above mentioned results, it is tempting to speculate that female arsonists are likely to display a very similar link between 5-HIAA/MHPG concentrations and impulsive arson. However, using meta-analytical procedures, Moore et al. has demonstrated that, in studies that focus on the link between 5-HIAA concentrations and general antisocial behavior, effect size is reduced substantially when females are included alongside males in study samples³. This finding suggests that researchers should be cautious before generalizing

³ Note, however, that the effect size still remains significant when females are included alongside males.

research conducted with males to female populations.

Glucose metabolism irregularities have also been noted in male arson and arson recidivism (Roy, Virkkunen, Guthrie, & Linnoila, 1986; Virkkunen, 1984; Virkkunen et al., 1989). Unfortunately, however, there are no studies—to the author’s knowledge—that specifically focus on glucose metabolism in *female* arsonists.

Sexual Pathology. In relation to sexual pathology, some interest has focused on the link between menstruation or menstruation abnormalities and female arson (Barker, 1994; Lewis & Yarnell, 1951; Puri et al. 1995; Tennent et al., 1971). In the nineteenth century, onset of menstruation was linked to criminal behavior, including arson (Barker, 1994; Harry & Balcer, 1987). Nevertheless, contemporary researchers have failed to find confirmatory evidence of this proposed link (see Harry & Balcer, 1987; Lewis & Yarnell, 1951). Tennent et al. (1971) are the only researchers who have investigated the presence of menstruation abnormalities (i.e., dysmenorrhoea) in female arsonist psychiatric inpatients. They found that female arsonists were significantly more likely than a female offending control group to hold acute dysmenorrhoea (43% of the arson group relative to 14% of the controls). It is unclear, however, what role—if any—such menstruation abnormalities played in the etiology of arson.

The act of arson has also been classically linked to *sexual fetishism* (Freud, 1932). Nevertheless, while the research evidence suggest that a small proportion of *males* may commit arson in order to fulfill sexualized fire fetishes (Kocsis, & Cooksey, 2002; Lewis & Yarnell, 1951), the literature pertaining to females does not typically feature fire fetishism (Lewis & Yarnell, 1951).

Motivators for Female Arson

In the absence of any comprehensive theory specifically developed to account for female arson (although see Fineman, 1995 or Jackson et al., 1987 for formulative approaches developed largely from work with male arsonists), it is crucial that psychiatric and clinical professionals understand the motivators underlying female acts of arson in

order to guide assessment of clients' firesetting behavior (see Table 1 for key motivators that differentiate female arsonists from their male counterparts).

Studies Incorporating a Male Comparison Group

Lewis and Yarnell (1951) conducted an early examination of female arsonists' motives. They examined 2000 reports of US firesetting attained from the National Board of Underwriters; the majority of which concerned male perpetrators. However, Lewis and Yarnell managed to identify 200 reports—involving female perpetrators—that they were able to examine separately. From their examinations, Lewis and Yarnell concluded that female arsonists essentially hold the same motives as male arsonists which may be conceptualized under the following four categories: arson as *revenge*, arson as an *attention seeking mechanism*, arson as a result of *need for excitement and danger*, and arson as a result of *pyromania-type symptoms*. Lewis and Yarnell also concluded that female arsonists appear to differ from males in that they do not appear to be instinctively driven towards setting fires in order to *witness* heroic firefighting activities, or in order to *display* such skills themselves. However, Lewis and Yarnell did note that some women committed arson in order to portray themselves as a dramatic and brave victim of the fire. While this initial attempt to group the motivators underlying female arson was pioneering, the methods used to categorize motives are largely unclear.

Very few studies have adequately compared the motives of male and female firesetters. In one exception, Icove and Estep (1987) studied 1,016 arrest interviews for arson-associated crimes (50% of which were male interviewees, 8% female, and 42% unspecified). Icove and Estep found that males could be largely categorized by the following motivations: *excitement* (40%; $n = 200$), *vandalism* (27%; $n = 136$), *revenge*, (18%; $n = 91$), *crime concealment* (3%; $n = 13$), and *profit* (< 1%; $n = 4$). Females, on the other hand, were not categorized into the *crime concealment* or *profit* categories at all, and instead were best classified under: *revenge* (28%; $n = 40$), *vandalism* (21%; $n = 21$), and *excitement* (17%; $n = 14$). Icove and Estep do not explicitly discuss the sex differences they discovered for all of

these motivators. They do, however, highlight the apparent preference of females to commit arson as a form of revenge relative to males. The absence of crime concealment and profit motivators for female arsonists is also notable.

In a UK study, Rix (1994) attempted to classify the motives of 153 arsonists (16% of whom were female; $n = 24$) referred for psychiatric assessment. Overall, Rix found that fifteen categories were able to account for all of their participants' reasons for committing arson. The three most likely motivators for male arsonists were reported to be *Revenge* (33%; $n = 42$), *Excitement* (12%; $n = 16$), and *Vandalism* (10%; $n = 13$). In comparison, however, the three most likely motivators for female arsonists were reported to be *Revenge* (21%; $n = 5$), *Re-Housing* (arson to promote a relocation associated with social housing; 21%; $n = 5$), and *Attention Seeking* (arson to attract attention or elicit help; 17%; $n = 4$). Thus, in this study, the most popular motive for arson as evidenced by both male and female arsonists was revenge. However, male and female arsonists appeared to differ on the other most highly noted motivating factors for arson. Here, males appeared more likely to commit arson due to the excitement elicited by a fire or as part of general criminal vandalism. Female arsonists appeared more likely to commit arson in order to be relocated to their preferred social housing, or to gain attention.

In a recent retrospective study, Dickens et al. (2007) examined the motives of 167 UK arsonists referred for psychiatric assessment (22.8% of whom were female; $n = 38$). Interestingly, females were significantly more likely to be motivated to commit arson due to *cry for help*-type motivations (including para-suicide) relative to male arsonists (36.8% of females versus 17.8 % of males respectively). Females were also significantly less likely to be motivated by pyromania-type traits (13.2% of females versus 32.6% of males respectively). This study appears to be unique since it compares—and *statistically analyzes*—the prevalence of various motivators for arson according to arsonist perpetrator sex.

Studies without a Male Comparison Group

Some researchers have reported the prevalence of various motivators for female

arsonists in the absence of a male arsonist comparison group (Harmon et al., 1985; Noblett & Nelson, 2001; Tennent et al., 1971; Stewart, 1993; Wachi et al., 2007). Harmon et al. (1985), for example, studied the retrospective case files of 27 US female arsonists referred by the courts/probation for psychiatric assessment. Overall, Harmon et al. describe two main categories which accounted for their female participants' motivation to commit arson: *Anger-related arson* (i.e., arson committed out of anger, with or without a target, sometimes in the context of delusions; $n = 17$), and *Cry for Help-related arson* (i.e., arson committed in order to draw others' attention to one's own problems or issues, often in the context of mental health problems; $n = 7$). A small number of females were also noted as having engaged in either motiveless or *accidental* instances of firesetting ($n = 3$). Notably, Harmon et al. observed that *planned* arson was most likely to be associated with anger-related motivations and speculated that anger-related female arsonists felt unable to *directly aggress* against their victims (i.e., see McKerracher & Dacre's Displaced Aggression Hypothesis, 1966).

Stewart (1993) reported that just over one third of her female arsonist prisoners participants were classified as holding varied motives for their arson (e.g., revenge *and* mental illness). The most prevalent motives mentioned were *Revenge* (46%; $n = 13$) followed by *Attention Seeking* (29%; $n = 8$) and *Instrumental* motives (29%; $n = 8$). Other, less prevalent motives mentioned by participants were *Mental Illness* (14%; $n = 4$), *Suicide* (14%; $n = 4$), and *Pyromania* Type Features (7%; $n = 2$). A strength of this study is that the researchers presented inter-rater reliability figures for their classification of motives (84.6% concordance). Nevertheless, explicit examples of each of the identified motives were not provided.

Tennent et al. (1971), in their analysis of 56 UK female arsonist psychiatric inpatients, reported that—of the total 111 instances of firesetting associated with these patients—the vast majority (39%; $n = 43$) appeared to be motivated by some type of conflict with authority (e.g., within hospital, prison or work). Other motivators noted were

Revenge (directed at those holding no authority over the arsonists; 24%; $n = 27$), *Attention Seeking* (15%; $n = 17$), and *Self Harm/Destruction* (6%; $n = 7$). Again, explicit examples of each motive were not provided.

In a recent study designed to examine the crime scene variables of 83 repeat female arsonists from Japan, Wachi et al. (2007) found that female arsonists appeared much more likely to be classified as displaying *expressive* rather than *instrumental* acts of arson (83% versus 17% respectively). Expressive arson behaviors consisted of unplanned and opportunistic or impulsive behaviors whereas instrumental arson consisted of pre-planned behaviors intended to meet specific goals.

Researchers have also made some interesting commentary on the apparent *targets* of arson committed by females. Lewis and Yarnell (1951) for example, noted that female arsonists do not tend to commit their offences “beyond the limits of their own circumscribed world” (p. 347). In other words, female arsonists appear to target property that is often either directly related to themselves, or linked to them in some way. More recent research appears to support this contention (Bourget & Bradford, 1989; Harmon et al., 1985; Stewart, 1993; Tennent et al., 1971; Wachi et al., 2007). For example, Bourget and Bradford (1989) concluded that their Canadian female arsonist psychiatric referrals tended to “choose a target invested with emotional meaning” (p. 298). Similarly, Wachi et al. (2007) reported that their Japanese female arsonists committed arson within or closely around their place of residence.

Overall, the literature examining female arsonists’ motives in relation to male arsonists suggests that there are not *exceptional* differences between these two groups. However, the motive of *attention seeking* or *cry for help* is prominent for female arsonists both in studies that focus solely on female arsonists (Harmon et al., 1985; Stewart, 1993; Tennent et al., 1971) and in those studies comparing the relative prevalence of this motivation in female arsonists relative to males (Dickens et al., 2007; Rix, 1994).

Female Arson Case Example

Sarah was a 52 year old woman, with an extensive history of depression, who was admitted to a medium secure psychiatric unit following a conviction of arson. This was Sarah's first offence, and first psychiatric admission, although she had been in touch with community psychiatric services for many years. Sarah reported having experienced a fairly unremarkable childhood, although she was separated from her mother for 7 months as a baby while her mother was hospitalized following a car accident. As an adult, Sarah married, had a son, and worked as a barmaid. Following an amicable divorce in her forties, Sarah lived alone and stopped work; receiving unemployment benefit. Sarah described feeling unfulfilled, empty, and lacking direction, but felt unable to communicate this to her son who visited her regularly. Following a small argument with her son on an outing, Sarah returned home and deliberately set light to her home by spraying aerosol onto her curtains and chairs. The fire spread quickly to adjoining houses (that were fortunately empty at the time) causing significant financial loss. Sarah attributed her behavior to frustration over her situation, and reported believing that the fire would show people—including her son—that she needed "help".

Treatment and Risk-Related Issues with Female Arsonists

There are currently no standardized programs for either male or female adult arsonists in the US, UK, or Australia (see Palmer, Caulfield, & Hollin, 2007 for a UK review). It is very unclear, *why* there are so few treatment initiatives for arsonists generally. Two particular issues appear to be hindering professionals' ability to design adequate treatment programs for either female or male arsonists. First there is very little information available examining recidivism in arsonists generally, let alone any information comparing the recidivism rates of male versus female arsonists. Second, an associated problem concerns arson-related risk factors. Currently, professionals hold very little information concerning which risk factors—when targeted—would lead to reductions in future acts of

arson. Pertinent questions are: (1) Do female arsonists recidivate sufficiently to warrant specific attention for their arson behavior?; (2) What types of risk factors are related to future risk of arson for females?; and (3) Are these recidivism figures or risk factors notably different from those associated with male arsonists?

In terms of *arson recidivism*, research conducted by Rice and Harris (1996) has suggested that the base rate of arson reoffending in mentally disordered *males* is around 16% over a 7.8 year follow up period ($N = 208$). However, other research suggests that this figure is much higher with estimates of 28% (Geller, Fisher, & Bertsch, 1992; Lewis & Yarnell, 1951). These studies, nevertheless, have been critiqued methodologically (see Brett, 2004 for a review). Consequently, the benchmark with which to compare the paucity of research examining *female* arsonists' recidivism is relatively poor. The research literature pertaining to female arsonists is even less sophisticated. Some studies, for example, include females in their overall samples (e.g., Soothill & Pope, 1973), but because of the low numbers are unable to compare these females adequately to their male counterparts. Furthermore, few studies focus specifically on the *prospective* recidivism of female arsonists. In a notable exception, Lewis and Yarnell (1951) reported 13% recidivism for female arsonists followed up over a period of 15 years. Nevertheless the recidivism criteria utilized for this study were poorly explicated.

In the absence of further prospective studies, one must turn to less rigorous retrospective data regarding the proportion of females who have engaged in *multiple* arson activities. Examination of such studies shows considerable variation across differing samples (from about 11% to 79%; see Brett, 2004 for an overview). For example, Harmon et al. (1985) found that 11% ($n = 3$) of their psychiatric referrals for arson held previous charges for arson on file (cf. Lewis & Yarnell, 1951). Tennent et al. (1971), on the other hand, found that over two thirds of their female arsonist psychiatric inpatients (or 79%) reported acts of multiple firesetting. Clearly, the small samples sizes, the various sources used to obtain these samples, and the differing criteria used to record previous arson-

related behavior renders these estimates for females less than helpful. In a recent study, that examined—retrospectively—the files and criminal history records of 167 UK psychiatric arson referrals (23% of which were female; $n = 38$), Dickens et al. (in press) found that gender was *not* a variable predictive of repeat arson. Furthermore, interestingly, Dickens et al. reported repeat arson occurring in nearly half of their overall sample (49%; $n = 81$). Other studies comparing male and female arsonists' previous acts of firesetting (see Geller & Bertsch, 1985; Puri et al., 1995; Rix, 1994), also suggest that rates of multiple firesetting are relatively comparable across sex with around one in five of either sex likely to hold a history of multiple firesetting.

In summary, little is known about the recidivism base rate of female-perpetrated arson. Existing literature suggests (1) that the figure could be quite considerable, and (2) that the figure is likely to be relatively comparable with that found in male arsonists. This similarity with male arsonists, and figures suggesting that arson recidivism is comparable with, or higher than sexual recidivism (i.e., 13% Hanson & Morton-Bourgon, 2004) suggests that female and male arsonists reoffend sufficiently to warrant expert attention.

The associated problem with designing specialist treatment for arsonists is knowing the exact arson-related *risk* factors that require treatment in order to reduce the risk of future arson offences. As previous researchers have noted (e.g., Dickens et al., in press; Gannon & Pina, 2009), there is very little specific guidance for professionals concerning how one should predict risk, or indeed severity of risk, for either males or females who have previously engaged in arson. There are no published empirical risk assessment tools for use with arsonists, although some violence risk prediction tools include arson under their assessment schedules (e.g., HCR-20; Webster, Douglas, Eaves, & Hart, 1997). Furthermore, of the research that has been conducted to examine the potential variables predictive of firesetting or arson recidivism, the majority have focused on either male children and adolescents (e.g., Kolko, Herschell, & Scharf, 2006), or adult males in psychiatric contexts (e.g., Rice & Harris, 1996). In one recent exception, Dickens et al. (in

press) examined the key characteristics of male and female UK arson recidivists using predictive regression analyses. Amongst other variables, Dickens et al. found that recidivist arsonists were characterized by the following factors: being *young, single*, having developmental history of *family violence* or *substance abuse*, an *early onset of criminal convictions*, *lengthier prison stays*, *relationship problems*, and *more preconvictions for property offences*. Interestingly, Dickens et al. (in press) found that male and female arsonists coded as having started a *dangerous* fire, that was likely to cause significant harm or damage, appeared no more likely than other arsonists to repeat their firesetting behavior. Dickens et al.'s study is interesting since it suggests that those most likely to repeat arson experience developmental adversity and problems establishing and maintaining appropriate relationships with others. At first glance, Dickens et al.'s findings also appear to suggest that general criminality may differentiate recidivists from non recidivists. However, recidivists were no more likely to hold preconvictions for *aggression* or *violent* and *sexual abuse*, suggesting that their criminal interests may lie solely with property or fire-related offences. In support of this, Dickens et al. found that more of the recidivist arsonists experienced some sort of excitement or anxiety around the time of their firesetting. Thus, one type of risk factor for repeat male and female arsonists relates to interest in, or excitement associated with fire itself (see also Rice & Harris, 1996).

Given the lack of research dedicated to examining the treatment needs of both arsonists generally and female arsonists, it is imperative that researchers pinpoint, more effectively, those factors empirically associated with risk and severity of arson. One set of stable risk factors associated with female arson might relate to developmental experiences (e.g., frequency and severity of childhood abuse). In terms of risk factors amenable to therapeutic intervention, factors relating to general psychopathology and motivators underlying the arson would appear to represent worthy risk factors for future study in relation to female arsonists.

Given the above discussions, it is perhaps not surprising that there are no

standardized treatment programs for either male or female arsonists. This does not, however, preclude the possibility of developing treatment initiatives for female arsonists. At present, some of the only published accounts of treatment for female arsonists have typically described the treatment of females within cognitive-behavioral treatment groups implemented in psychiatric settings (e.g., Swaffer, Haggett, & Oxley, 2001; Taylor, Thorne, Robertson, & Avery, 2002; Taylor et al., 2006). For example, Swaffer et al. (2001) describe their development of an arson intervention group in the UK for mixed sex mentally disordered patients comprising 62 groups sessions covering: (1) education on fire danger, (2) coping skills (i.e., social skills, assertiveness, conflict resolution, and problem solving work), (3) reflective insight (i.e., self esteem and self concept work), and (4) general relapse prevention work. The researchers also describe the use of individual therapy alongside the group work, and of individualized assessment of treatment need which includes psychometric assessments of fire interest, anger, depression, self esteem, and assertiveness. Swaffer et al. provide the reader with a detailed case study of a female patient in order to provide evidence of the effectiveness of their intervention with 10 patients (6 of whom were female). They do not, however, provide any detailed information on clinical change due to the small number of patients involved.

A similarly detailed arson intervention for UK intellectually disabled patients has been described by Taylor et al. (2002). Taylor et al. describe implementing their intervention separately for male and female patient subgroups although it appears that the 40 treatment sessions covered the same basic content (i.e., fire education, analysis of offending, coping skills, family adversity, and relapse prevention). Although the authors report encouraging post treatment improvements using questionnaires measures, the researchers do not compare male and female arsonists, and it would seem almost pointless to do so given the small sample sizes.

In a later study, Taylor et al. (2006) describe their implementation of an arson intervention program very similar in nature to that described by Taylor et al. (2002). This

time, however, the authors' treatment population was six intellectually disabled female psychiatric inpatients. Following 40 treatment sessions, Taylor et al. reported post treatment improvements on *self esteem* (*Culture Free Self Esteem Inventory*; Battle, 1992), *anger* (*Novoco Anger Scale*; Novoco, 1994), *depression* (*Beck Depression Inventory – Short Form*, Beck & Beck, 1972), and *goal attainment regarding treatment needs* (*Goal Attainment Scales*; Kiresuk & Sherman, 1968). Perhaps due to the low number of individuals, however, the only *significant* improvement reported was for overall goal attainment regarding treatment needs.

Nevertheless, the authors report very promising improvements via individual case reports.

In summary, then, although the published treatment initiatives with females look rather promising, there is some way to go yet before the sample sizes, or methods of assessing treatment success are sophisticated enough to provide detail on “What Works” in treatment with female arsonists.

Future Considerations for Research and Treatment with Female Arsonists

Research Needs

As evidenced by this review, there are a host of research needs associated with female arson. The most pressing need is to further develop basic understanding of female arsonists' features (i.e., interpersonal and pathological) in relation to male arsonists and female offenders generally so that factors pertinent to female-perpetrated arson may be isolated and used to inform professional interventions. Particularly prominent areas requiring investigation are pyromania (i.e., the nature and prevalence of pyromania in female versus male arsonists) and general psychopathology (i.e., the nature and prevalence of mental disorders in female versus male arsonists). There is also a pressing need for researchers to begin thorough *prospective* investigations of the base rates of recidivism (arson and otherwise) in female versus male arsonists. As these base rates are established it may then become possible to investigate more comprehensively factors that predict *female* arson recidivism so that these factors may be targeted through intervention.

Treatment Needs

There does seem to be some overlap between the treatment needs of male and female arsonists (e.g., developmental adversity, personal characteristics, psychopathology, and motivators underlying firesetting) that would render it reasonable to suggest that both females and males would likely benefit from an eclectic program of flexible treatment modules covering offence analysis, the relationship between childhood history and adult functioning styles (including, but not limited to coping skills, anger management and assertiveness, problem solving, and general communication styles), attitudes or specific interest in fire, and relapse prevention work. For females, in particular, however, one might expect that they will need some more specific emphasis on the effects of previous victimization—often at the hands of men—on their interpersonal functioning, self esteem, and coping. This is critically important given that these targets are deemed critical as treatment targets for female offenders generally (Covington & Bloom, 2006; Koons, Burrow, Morash, & Bynum, 1997). Female arsonists are also likely to require specific work examining how they can work to develop satisfactory and supportive relationships such that they feel able to gain attention or ask for attention in pro-social ways when required. A further topic in need of detailed assessment and treatment might also relate to how underlying mental health issues or personality disorders function to increase the risk of committing arson, as well as exploring the potential link between self harm and arson. Research suggests that women who self harm experience—amongst other issues—an inability to communicate their problems, trauma, or needs effectively (Liebling, Chipcase, & Velangi, 1997). Thus, for female arsonists who self harm, an exploration of healthy communication style is likely to be paramount for effective treatment. It is worth adding a cautionary gender-responsive note here. Because female arsonists, and female offenders generally, hold pervasive victimization histories that are typically perpetrated by males, they are unlikely to feel “safe” to explore their feelings in the company of other male clients. Research suggests that treatment effectiveness is generally improved for women treated in all female groups (see Ashley, Marsden, & Brady, 2003; Lex, 1995). Thus, female-focused

arson treatment will allow for a more gender-responsive approach (Covington & Bloom, 2006).

Conclusions

In this review, the main characteristics, psychopathologies, and potential treatment needs of female arsonists have been examined. Overall, our examination of the literature suggests that, while females are often included in large cohorts of arsonists, they are typically not pinpointed for separate discussion. Furthermore, very few studies have adequately compared female arsonists to their male counterparts or female offenders generally. This makes it hard to draw any definitive conclusions regarding female arsonists' characteristics, and how such characteristics differentiate them from other offending female, and males who commit arson. Thus, we urge professionals in this area to think carefully about including comparison groups in their studies of female arsonists, and to make sex-based comparisons when including female arsonists in larger overall cohorts. At present, the typical female apprehended arsonist appears to be Caucasian in heritage, is likely to have been victimized during childhood, may hold some form of mental health issue, and is likely to commit arson near home, as either a form of revenge, or to cry for help. It is important that professionals keep these characteristics in mind when conducting assessments. Nevertheless, it is also important that professionals remain open-minded regarding the likely characteristics and needs of female arsonists since much research is needed to further develop our profile of female arsonists substantially.

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TABLE 1. Key Features that Differentiate Female Arsonists from their Male Arsonist Counterparts

Female Arsonist Features	Associated Research
<i>Developmental Pathology</i>	
Prevalence of sexual abuse	Dickens et al. (2007)
<i>General Psychopathology</i>	
Prevalence of depression, Psychosis	Bradford (1982); Dickens et al. (2007); Rix (1994)
Absence of sexual fetishism associated with fire	Lewis & Yarnell (1951)
<i>Motivators for Arson</i>	
Prevalence of attention seeking/cry for help type motivations (including para-suicide)	Dickens et al. (2007); Icové & Estepp (1987); Rix (1994)
Absence of desire to <i>witness</i> firefighting activities or <i>display</i> firefighting skills	Lewis & Yarnell (1951)
Absence of firesetting in pursuance of crime concealment or profit	Icové & Estepp (1987)