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Klinefelter syndrome and fire setting behaviors: a case report and scoping review

Ambra D'Imperio^{a,b}, Luigi Francesco Saccaro^a, Jonathan Lo^c,
Maria Mavromati^d and Camille Jantzi^{a,e}

^aDepartment of Psychiatry, Hôpitaux Universitaires de Genève, Geneva, Switzerland; ^bFaculty of Medicine, Institute for History and Ethics of Medicine, Technical University of Munich, Munich, Germany; ^cDepartment of Internal Medicine, State University of New York Downstate, Brooklyn, New York, USA; ^dService of endocrinology, diabetology, nutrition and patient education, Hôpitaux Universitaires de Genève, Geneva, Switzerland; ^eDepartment of Psychiatry, Unit of Forensic Psychiatry, University center of legal medicine (CURML), University of Geneva, Geneva, Switzerland

ABSTRACT

This scoping literature review explores the correlation of a behavioral alteration commonly found in people with Klinefelter syndrome (KS), specifically fire setting. KS is the most common sex chromosome aneuploidy, presenting with a heterogeneous pattern of neuropsychiatric disorders. Several studies have specifically described fire-setting behavior in KS. A scoping literature review on KS and fire-setting behavior was conducted, consulting electronic databases. The research extended from 1988 to December 2023 and was limited to the English language. Finally, described is the experience of a young man who was diagnosed with KS and who presented with incendiary behavior despite having no psychiatric history. This article aims to investigate potential gaps in knowledge on this topic, considering its implications in the forensic field. Summarizing the review of literary sources, 13 relevant case reports are included. No other reviews on this topic in forensic psychiatry were found. This search helped in assessing criminal liability in a similar case discussed in 2022. Given the further progress in forensic psychiatry, there is an incentive to better understand whether plausible triggers or a preliminary psychopathological predisposition for antisocial traits, for committing arsons, or even to develop a proper psychiatric issue, such as pyromania, might be found in KS.

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KEYWORDS Klinefelter syndrome; fire setting behavior; forensic assessment; criminal responsibility

Introduction

With a prevalence of more than 1 in 1000 newborns, Klinefelter syndrome is the most common sex chromosome aneuploidy associated with hypogonadotropic

CONTACT Ambra D'Imperio  ambra.dimperio@tum.de

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hypogonadism, various degrees of testosterone deficiency, and infertility. Males affected by KS also suffer from various comorbidities, including gynecomastia, type 2 diabetes, obesity, valve abnormalities, and osteoporosis, as well as a range of neurocognitive impairments, including neuropsychiatric manifestations that can affect the social functioning of affected individuals predisposing them to psychiatric disorders or antisocial behavior (Giagulli et al., 2019). Cognitive deficits associated with KS impair executive functioning, language skills, social cognition, attention and memory, and visuospatial abilities.

As far as language impairments are concerned, these can manifest as difficulties in both expressive and receptive language, impacting communication and understanding (St John et al., 2019). Social cognition deficits may lead to challenges in interpreting social cues and forming meaningful social relationships. Attention and memory deficits, common in men with KS, can affect learning, information processing, and academic performance. Additionally, visuospatial impairments in men with KS may impact tasks that require spatial orientation and visual-motor coordination (Mandoki et al., 1991). These neurocognitive impairments collectively impact multiple aspects of KS's social, personal, daily, and academic functioning. They may also be specifically relevant in the case of fire-setting behaviors, which have been described in KS, affecting the individual's understanding of the consequences of their behavior, as well as the inhibitory control of impulse and emotion regulation.

Executive functioning difficulties in men with KS may result in challenges with planning, problem-solving, and inhibitory control (Alamos et al., 2022). Some of these deficits can result in emotion regulation difficulties, a common trait in men with KS (van Rijn & Swaab, 2020). Emotion dysregulation is a well-known common risk factor for severe psychiatric disorders (Saccaro et al., 2021), as well as for impulsive behaviors such as fire-setting. As with other impulse control disorders, there is evidence that the reward system might also be involved in fire-setting behaviors, at least considering the addictive characteristic of this behavior and some similar conditions such as gambling, kleptomania, and trichotillomania (Yau & Potenza, 2015). The reward system in the brain, which includes the release of neurotransmitters like dopamine, plays a pivotal role in motivation and reinforcement (Grant et al., 2006). The act of starting fires, or even of watching fire-related activities, may trigger a surge of dopamine and other pleasure-inducing neurotransmitters, leading to a transitory sense of excitement, satisfaction, or even relief (Grant et al., 2013). These pleasurable sensations may become a powerful motivator for repeated fire-setting incidents, as individuals may seek to replicate the rewarding experience. While evidence of alterations in the reward system in KS is lacking, inhibitory control and emotion dysregulation may exacerbate the rewarding nature of fire-setting, further fueling impulsive acts. This heightened emotional state, coupled with the powerful reinforcement of the reward system, may lead to a vicious cycle of fire-setting behaviors in KS.

Analysis of criminality among sex chromosome trisomies compatible with live birth is valuable in identifying which factors play a role in behavioral disturbances. A cohort study investigated the criminal pattern in men with KS or 47,XYY, also known as Jacobs Syndrome (Stochholm et al., 2012). Of note, the authors found an increased number of convictions for arson among these populations. Additionally, 47, XYY, which has normal testosterone production, was associated with a higher or equal pattern of criminal behavior than KS. Testosterone substitution therapy, however, is not known to be associated with an increase in criminality (Stochholm et al., 2012). In fact, early testosterone substitution could provide better intellectual functioning later in life, theoretically mitigating the disadvantageous socioeconomic factors of low educational level and low IQ associated with KS, but this requires further study (Simpson et al., 2003).

It is important to note that the variability in KS phenotype cannot be completely explained by the degree of androgen deficiency, even though the neurodevelopmental role of testosterone is important. Furthermore, genotype-phenotype correlations in KS are not very well understood. Different hypotheses have been studied as possible explanations for the phenotypic variability in KS, such as the parental origin of the extra X chromosome, X chromosome inactivation patterns, polymorphisms in the androgen receptor (mostly CAG repeat length), regulation of autosomal gene expression by sex chromosomes, as well as epigenetic mechanisms such as DNA methylation profiles (Bellott et al., 2014).

In patients suffering from KS, androgen replacement and behavioral therapy are ideally started around puberty, but diagnosis may be delayed until adulthood due to phenotypic variability and mosaicism. A combination of these treatments appears crucial for the overall management of KS. Results of early hormone therapy are encouraging, with evident benefits on quality of life and minimization of social stigma (Fabrazzo et al., 2021; Flannigan et al., 2018). Nevertheless, some behavioral aspects of KS seem difficult to disentangle from its neuropsychiatric condition, and, as with any medical management, patient compliance is also a factor in outcomes. Among the behavioral aspects, the urge to set a fire seems to be found even after the therapy has begun. Although fire-setting behaviors are common in patients affected with some neuropsychiatric conditions or disabilities, the existing literature shows few studies on this topic (Collins et al., 2022). Interestingly, several isolated cases of people suffering from KS who exhibit recurrent fire-setting behavior have been reported and published.

Fire setting, pyromania, and arson

Fire setting is a pervasive behavioral phenomenon. The fascination surrounding fire within the human psyche holds ancient significance, considered a crucial juncture in human evolution. While the direct role of fire in

encephalization remains debated, its domestication, estimated to have occurred between 1.4 and 2.3 million years ago, aligns with its integration into daily life (Cornélio et al., 2016). *Homo erectus* demonstrated the ability to control and employ fire for specific culinary purposes, marking the advent of interpersonal communication and symbolization within religious rituals (Attwell et al., 2015).

In the realm of psychiatry, deliberate and purposeful fire setting is identified as a criterion in pyromania (American Psychiatric Association, 2013). The rarity of pyromania and its exact prevalence continue to be debated. This condition may affect children more frequently, as well as adults, with an estimated prevalence ranging between 2.4% and 3.5% (Dell'osso et al., 2006). The International Classification of Diseases 11th Revision (ICD-11) has not provided significant new insights into this area (World Health Organization, 2019). While the fascination for fire setting and a distinct arousal related to it are specific criteria for pyromania, instances of fire setting can manifest as hazardous behavior across a spectrum of clinical conditions. These conditions encompass manic states, dementia, AIDS-related neuropsychiatric changes, and Tourette syndrome (Gunderson, 1974; Jankovic et al., 2006). These pathological conditions collectively exhibit an impaired impulse system and manifest as a conduct disorder (Barnett, 1992).

From a psychoanalytical perspective, Freud initially discussed fire in *Civilization and its Discontents*, referencing the conflict within the human mind and the genesis of fire as an innate impulse extinguished by urination (Freud, 1962). Jung made a psychoanalytical contribution by exploring libidinal needs and their relationship with fire, resulting in subsequent archetypal symbolization (Vedor, 2023).

It is crucial to distinguish arson from fire setting; arson itself constitutes a criminal act, highlighting the domain of forensic psychiatry (Ritchie & Huff, 1999). Through psychiatric evaluation, arsonists can be categorized as either not guilty by reason of insanity or non-insane arsonists. Antisocial and borderline personality disorders are commonly noticed within specific subgroups of arsonists in correctional populations, with a higher rate in males. The prevalence of female arsonists is on the rise, often characterized by specific elements in their psychiatric history, such as experiences of sexual abuse (Stewart, 1993). Their acts of arson frequently involve setting fire to their partner's property or that of their neighbors. Conversely, male arsonists are more commonly found to be isolated and unemployed (Burton et al., 2012). These three distinct concepts have separate definitions (refer to Table 1).

According to the general literature, the multifactorial etiology of the fire setting overlaps with impulse control disorder (ICD) (Dell'osso et al., 2006). Hormonal and neurotransmitter dysregulations are often cited as predictive factors. In the past, some criticism has been raised when considering juvenile

Table 1. Phenomena related to fire in forensic psychiatry.

Phenomenon	Definition	Specificities
Fire Setting	A pervasive behavioral phenomenon with ancient significance in human evolution. Ranges from controlled use to hazardous behavior in clinical conditions, especially in children.	Estimated prevalence in various clinical conditions: manic states, dementia, AIDS-related neuropsychiatric changes, Tourette syndrome.
Pyromania	Identified by deliberate and purposeful fire setting; prevalence debated, affecting mostly adults. Specific criteria include a fascination with fire.	Estimated prevalence: 2.4% to 3.5%. Higher occurrence in males. DSM-V principal criteria: fascination with fire. ICD-11 not significantly insightful.
Arson	A criminal act distinct from fire setting. In forensic psychiatry, arsonists are categorized as not guilty by reason of insanity or non-insane.	Commonly associated with antisocial and borderline personality disorders. Prevalence higher in males. Female arsonists' prevalence rising.

fire setting as a unique syndrome rather than a component of antisocial behavior (Forehand et al., 1991), but there is no reference to Klinefelter's condition. It has been reported that individuals with variant 48 (XXXY) or 48 (XXYY) are, in general, more violent and known for antisocial behavior. Apparently, fire-setting behavior is more common in males in early adulthood and occurs along with hormonal changes in late adolescence (Peters & Freeman, 2016).

Although KS is the most frequent sex chromosome aneuploidy and much has been written, very little is known about the specific relationship in XXY patients and the phenomenon of fire setting. All previous studies have not covered the role of neurobiology in both fire-setting behaviors and in Klinefelter's patients, although several neuroanatomical findings are commonly found in fire-setting behavior and Klinefelter's individuals, such as executive dysfunction and disturbances in the mesolimbic pathway, there is still no specific evidence of a direct interaction (Verri et al., 2010).

Methods

This scoping review discusses the literature on fire-setting behaviors in KS in the field of forensic psychiatry. The primary objective of this review is to synthesize existing evidence on this topic, supplemented by the inclusion of a novel case report to enhance the understanding of forensic assessments and highlight the clinical and forensic implications of this scoping review.

To achieve this, a literature search was conducted using EMBASE, Ovid MEDLINE, PsycINFO, PsycARTICLES, Web of Science Core Collection, PubMed, Scielo and Campbell Collaboration Library databases, covering the period from 1988 to December 2023. The search strategy employed a combination of the MeSH term 'Klinefelter syndrome' and keywords related to fire setting behavior such as 'fire setting behavior,' 'fire setting,' 'arson,' and 'pyromania.'

Results

Some highlighted aspects of the literature were brought to attention (Table 2) through this research. Only two articles have been written since 1988, including 'Klinefelter syndrome' and 'Fire setting behavior' (Bellott et al., 2014; Flannigan et al., 2018). According to Miller and Sulkes (1988) a total of six cases of Klinefelter patients known for fire setting have been detected both in psychiatric and penal institutions (Kaler et al., 1989). Currently, 13 case reports have been published on this topic, the most recent of which was issued in 2002 (Eytan et al., 2002). A common feature of all these reports is that individuals with KS are not known to have committed other crimes. In addition, individuals with KS perform ignition themselves, and sites such as houses, neighborhoods, or schools are recurrent targets. These individuals are known to have described a fascination with fire. Analysis has shown that fire-setting behavior is probably more common in Klinefelter individuals (Geschwind et al., 2000). In a population of male arsonists screened for levels of monoamine metabolites in CSF (Cerebrospinal fluid), a 5% frequency of KS was found, much higher than the frequency of sexual aneuploidy itself (0,2%) (Virkkunen et al., 1987). In addition, KS is mentioned as a specific category in a table for firesetters with mental disorders (Tyler & Gannon, 2012). Also, some neuroanatomical changes have been identified, such as a reduction in the gray matter before receiving the hormonal treatment and a predisposition to the development of brain tumors (Skakkebaek et al., 2014). Despite this small prevalence, KS is mentioned in relation to fire setting in 7 papers and in 9 works regarding arsons. There were no results in association with the keyword 'pyromania.'

Table 2. Klinefelter syndrome and fire setting behavior in literature.

Authors, publicaition year	Type of study	Number of cases	Diagnosis	Crime
Virkkunen et al. (1987)	Comparative study	1	Klinefelter syndrome	Arson
Miller and Sulkes (1988)	Review	6	Klinefelter syndrome	Fire setting behavior
Sorenson (1988)	Case report	2	Klinefelter sydnrome	Fire setting behavior
Kaler et al. (1989)	Case report, comment to letter	2	Klinefelter syndrome	Fire setting behavior
Eberle (1989)	Case report	2	Klinefelter syndrome	Fire setting behavior
Eytan et al. (2002)	Case report	1	Klinefelter syndrome, psychosis	Fire setting behavior
Collins et al. (2022)	Delphi study	1	Klinefelter syndrome	Fire setting behavior
Total		15		

The forensic psychiatric assessment on Klinefelter syndrome and fire setting behavior: a case report

This report covers the forensic psychiatric evaluation of a young man who suffers from KS and who was prosecuted in 2022 for arson in Geneva, Switzerland.

The defendant is a young Caucasian man, 20 years old, born in Geneva. When he was 18 years old, a karyotype analysis revealed the cause of his late puberty, tall stature, and interpersonal difficulties. He was finally diagnosed with KS through karyotyping. Testosterone supplementation was initiated to address hormonal imbalances, reduce fracture risk, and promote physical development that is typically male. A neuropsychological assessment showed mild oral language impairment, working memory deficits impacting immediate retention of complex instructions, moderate attention difficulties, and a slightly sub-standard visual processing speed. These impairments can be found in people with KS (Skakkebaek et al., 2015).

According to the Swiss legal system, two forensic psychiatrists are nominated by the prosecutor to determine the mental state of the defendant during the alleged facts and, therefore, evaluate his responsibility and the risk of recidivism and propose sanity measures to diminish this risk. To evaluate responsibility, forensic psychiatrists must determine any diagnosis that may lead to cognitive or behavioral impairments and establish a link between the diagnosis and the alleged facts.

To analyze any plausible connection between arson and the mental state of the defendant, the defendant was clinically evaluated four times, and access to his medical history and entire penal file was available for review. In the report, three previous neuropsychological assessments were included that revealed that the defendant had a normal IQ. Nevertheless, some cognitive limitations were found, such as dyslexia and dysorthography, which were linked to the diagnosis of KS previously established and confirmed in this assessment. An MRI revealed some isolated calcifications that were considered nonspecific. The conclusion was made that there was no other diagnosis or comorbidity.

Once confronted with the alleged facts, the defendant explained that with the help of his psychotherapist, he was able to better understand the reason he tends to set fires. He explained that he always felt it was difficult to express emotions and considered fire setting as a form of expression. Despite that, the defendant said that he had lit fires deliberately but without any particular purpose. When asked to give a more in-depth analysis, he stated that he had been careful not to set fires next to houses, and he made sure there was no one nearby. He did not specifically articulate a direct fascination with fire,

acknowledging the absence of any feelings of excitement or pleasure related to it. He disclosed an appreciation for observing firefighters in action and revealed a personal aspiration to pursue a career as a professional firefighter. However, his inability to achieve this aspiration stemmed from academic challenges, contributing to heightened insecurity due to his poor grades in school. When confronted with the word 'arsonist' that he used to represent himself in court, he explained that he mentioned it without much thought but with the intent of justifying his actions. According to him, his actions were not out of frustration. He did not feel angry or relieved before or after committing the crimes. During a second interview, the defendant clarified this statement, explaining that once the fires were lit, he felt a sense of powerlessness because he could not 'go back': he believes that he was then driven by anger mixed with sadness against his elementary school and against his teachers, who allowed him to pass the year 'by exception' and with bad marks. Concerning the lighter used, he justified possessing one because he is a smoker. He denied having consumed drugs before the fact, and he was unable to identify a particular triggering factor. According to him, the act of lighting fires was the only way for him to express himself and his emotions.

Looking into the relationship between the mind and the crime itself, the responsibility of the defendant appears to have been diminished based on these facts. At present, the respondent considers himself culpable of the alleged acts and acknowledges feelings of guilt, particularly regarding the penal consequences for himself. It should be noted that this delinquent behavior took place at a precise time and around a specific event. His behavior corresponded to the period preceding the separation of his parents. It is likely that the family conflict provided a stress factor for the defendant, who has difficulty channeling negative emotions in a mature manner due to his genetic pathology and its neuropsychiatric corollary.

This case study was conducted in accordance with the ethical standards set forth by 'Hôpitaux Universitaires de Genève.' The participant was provided with detailed information regarding the study's objectives, procedures, potential risks, and benefits. Consent was obtained voluntarily and in writing. Confidentiality and anonymity have been strictly maintained throughout the study.

Discussion

Key findings

While hormonal and genetic factors contributing to criminality in men with KS remain difficult to disentangle from psychological and socioeconomic

factors and individual experiences, the specific tendency for arson appears to be linked to the condition (Stochholm et al., 2012). The genetic factors contributing to impulsivity are being studied, and significant genes, such as those involved in neurodevelopment, the dopaminergic system, and neuronal plasticity, have been identified (Khadka et al., 2014). KS is known to have a widely altered DNA hypermethylation profile, which would play a pivotal role in gene expression (Gravholt et al., 2018). Future studies could more directly investigate whether alterations in these genes are common among those with KS.

There are plausible psychiatric grounds explaining the above-described case. Additionally, the predisposing factors linked to fire setting often exhibit a connection with various forms of neurocognitive impairment commonly observed in individuals with KS (Tyler & Gannon, 2012). In this specific case study, the diagnosis established via karyotyping indicated 'Klinefelter syndrome,' wherein its neuropsychiatric manifestation was the act of fire-setting behavior. Looking into the relationship between the mind and the crime itself, the responsibility of the defendant appears to have been diminished based on his impulsivity and difficulty in controlling his emotions.

At present, the respondent considers himself culpable of the alleged acts and acknowledges feelings of guilt, particularly regarding the penal consequences for himself. It should be noted that this delinquent behavior took place at a precise time and around a specific event. His behavior corresponded to the period preceding the separation of his parents. It is likely that the family conflict provided a stress factor for the defendant, who has difficulty channeling negative emotions in a mature manner due to his genetic pathology and its neuropsychiatric corollary.

The absence of substance abuse and the absence of other associated psychiatric pathologies have an impact are protective factors towards the risk of recidivism.

The diagnosis of pyromania was ruled out by the experts because it did not match the diagnostic criteria or the clinical evaluation. No tension or emotional excitement was experienced before the act, and no pleasure or relief in setting fires was found.

These criminal acts appear to be difficult to understand in the absence of concrete self-benefit secondary to the setting of the fires and the absence of emotional benefits (i.e. a feeling of pleasure and fascination for the fire). It is indeed likely, as the defendant expressed, that his acts were the expression of a high emotional intensity that he was unable to express verbally in the background of his interpersonal difficulties. The acts committed are thus part of the context of his genetic pathology with its neuropsychiatric corollary. During the evaluation interviews, the defendant reported that he was aware of the potentially damaging consequences of fire. For this reason, he chose to light them at night and in places with no

nearby dwellings or elements likely to spread the fire. In fact, all the fires were lit at night. These elements make it possible to account for the capacity of the defendant to appreciate the illicit nature of his act. Despite this ability, the logic of the act is absurd, as the defendant reports that he does not benefit financially or emotionally from the lighting of the fires. During the interviews, he explained that he did not know at the time why he had committed these acts but that he had hypothesized with his current therapist that it was an inappropriate way to express emotions of sadness and anger. This explanation could be an appropriation of the therapist's thoughts but can also be clinically accurate. Because of his interpersonal difficulties and a handicap in spontaneous verbal expression, the defendant could express himself in an inappropriate way with fire-igniting behaviors. In conclusion, the examinee has an altered capacity to determine the illicit character of his acts because of his pathology.

Applicability according to the Swiss penal code

There are no standardized scales to assess the risk of recidivism in the context of fire translated in French. Nevertheless, at the clinical level, the experts can conclude that the risk of recidivism is average, based on an HCR-20 scale. Indeed, KS is a chronic pathology that constitutes a handicap for his daily functioning. This pathology cannot be cured, but thanks to medical and social care, it can be tolerable. Social reinsertion and therapy are likely to reduce the risk of recidivism. It is important for the defendant to receive this specific care because his inappropriate reactions occur when exposed to stressors. In addition, because of his vulnerability, he is more likely to experience stress. The absence of substance abuse and the absence of other associated psychiatric pathologies have an impact on the risk of recidivism. The experts underscore that the circumscribed and time-limited nature of the acts indicates a behavioral disorder reacting to a stress factor.

The factors of fire setting are related to the mental state of the person undergoing assessment; thus, according to the Swiss penal code, the application of a therapeutic measure is mandated. Therapeutic measures such as a combined psychotherapeutic and psychiatric follow-up are likely to reduce the risk of recidivism. The respondent suffers from KS with a behavioral alteration, notably fire-setting behavior. This disorder requires multidisciplinary, psychiatric, and social care. The experts underscore the relevance of determining the possibility of an evaluation by the Court of Protection of Adults and Children in order to decide on a possible curatorship measure. In conclusion, the experts do not recommend placement in a psychiatric hospital because of the absence of acute psychiatric decompensation but insist on the importance of an adapted socio-educational follow-up.

Strengths and limitations

This scoping literature review possesses notable strengths and limitations. Among the strengths, it provides a comprehensive overview of the existing literature on this specific and relatively underexplored topic. Indeed, scoping reviews are particularly valuable in areas with limited prior research, and they play a crucial role in identifying gaps in the literature, thus highlighting areas that require further investigation, such as the association between KS and incendiary behaviors. The inclusivity of this review allows for the incorporation of a diverse range of study designs and sources, providing a holistic perspective on this research topic, which constitutes an area of great forensic and clinical interest. Overall, this scoping review offers preliminary insights on a still understudied topic and paves the way for further research and, in the future, systematic reviews on the topic.

However, it is important to acknowledge the limitations of this scoping review, which are largely inherent to this methodology. This review, due to its exploratory nature and broad scope, may not provide the same level of depth and detail as a systematic review. The primary focus on the forensic aspects of this assessment and case report may limit the depth of the analysis. To achieve a more comprehensive understanding, a future systematic review could be conducted once additional literature becomes available. Scoping reviews, including ours, typically do not assess the quality of the included studies, which can be a limitation when evaluating the reliability of the evidence. The non-systematic inclusion of studies might introduce bias, and the absence of a quantitative synthesis limits the generalizability of the findings. Nevertheless, despite these limitations, this scoping review serves as a crucial starting point in the exploration of the relationship between KS and fire-setting behavior, and it sets the stage for more in-depth investigations in the future.

Conclusions

Two main findings emerge from this scoping review and from clinical experience: first, no neurobiological pathway has yet been identified for fire-setting behaviors, although genetic alterations have been identified and linked to impulsivity in general. Therefore, further studies in behavioral psychiatry and genomic analyses are indicated. Phenomenologically, there is strong evidence to support that the reward system might be involved when humans have the urge to set fires, at least when considering the addictive characteristic of this behavior compared to some similar conditions such as gambling, kleptomania, and trichotillomania (Yau & Potenza, 2015). Future research investigating abnormalities of the reward systems in fire-setters may bear important clinical implications for

potential therapeutic or diagnostic purposes. However, further neuroscience research is needed to dispel common misconceptions about the intense human attraction to the impulse to set fire.

Second, determining the risk of recidivism in Klinefelter individuals known for fire-setting behaviors could be challenging, and the role of forensic psychiatrists is critical. Because the act of setting fire includes both an intentional and an accidental act, it is critical to determine the state of mind in the presence of a subjacent genetic condition, such as Klinefelter syndrome. In addition, KS might represent a potentially treatable subgroup of arsonists, and experts should evaluate this condition with caution. Only one study in the literature was found that focuses on conducting fire-setting-related assessments (Miller & Sulkes, 1988). Further research is needed in the field of forensic psychiatry to disentangle the underlying psychopathological predisposition from an organic condition in people who commit crimes of fire setting.

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Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article.

Data deposition

The data deposition for the case report is available at CURLM archives, providing accessibility for those interested in further examination or validation of our findings.

Geolocation information

Hôpitaux Universitaires de Genève, Département de Psychiatrie, Service de psychiatrie de liaison et d'intervention de crise, Rue Gabrielle-Perret-Gentil 4,1205, Genève.

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