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Firesetting Risk Conceptualization, Assessment, and Treatment Recommendations within Youth Psychiatric Acute Care Settings: A Case Study

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ABSTRACT

Firesetting behaviors are extremely dangerous not only to the individual but to society as one fire has the potential to destroy property and lead to serious injury or death. Youth firesetting behaviors are often under-assessed in psychiatric care settings intakes due to their relatively low base-rate and only are a part of a practitioner's conceptualization when these behaviors are part of their presentation to an emergency room. Acute psychiatric care settings are well-equipped to assess and treat many highly dangerous behaviors such as active suicidal and homicidal ideation, as well as non-suicidal self-injury. However, youth firesetting is without a formal and directed plan on how to assess the risk of these behaviors, conceptualize, and intervene effectively. A case study of a 16-year-old multiracial male named "Luis", who was psychiatrically hospitalized on an adolescent inpatient unit following multiple firesetting behaviors in the community, is used is to show the importance of multi-interdisciplinary collaboration between mental health providers and local fire safety programs. In addition, we will offer several recommendations to providers in the assessment and treatment related to juvenile who fireset.

Keywords: *Firesetting, Fire, Behaviors, Youth, Child*

Introduction

Youth firesetting is a misunderstood and underexamined behavior in the child and adolescent psychiatric literature base (Lambie *et al*., 2019; Sambol *et al*., 2024a; Stadolnik, 2015). Firesetting can include a set of complex and varied motivations (Gannon and Pina, 2010). Fire curiosity and interest is commonly at its peak during early to middle childhood and has been found to be the strong predictor of repeated firesetting in youth (Howell Bowling *et al*., 2013; Perks *et al*., 2019). Fire play with matches, interest in fireworks, and setting fire to items such as wood are normative in childhood development (Lambie *et al*., 2019). However, fires can be used maladaptively for self-harm and reckless behaviors

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(Horsley, 2021). The definition of firesetting is a fire that is set deliberately and intentionally (Stadolnik, 2015). Understanding the function of the behavior is crucial to conceptualize possible motivations and to inform subsequent decisions surrounding treatment planning, interventions, and possible need for higher level of psychiatric care.

Firesetting can include a set of complex and varied motivations (Gannon and Pina, 2010). Theoretical models of juvenile firesetting have conceptualized that motivations for firesetting include factors such as thrill seeking, self-soothing, complex curiosity, disorders of thoughts, revenge seeking with maladaptive coping with anger, sadness, and loss (Sambol *et al*., 2024b). Males represent a large proportion of juvenile fire setters in the literature and are found to be more impulsive, rageful, with a likelihood of being gang affiliated (Horsley, 2021).

Comparatively, females are at-risk for firesetting are those who are traumatized, engage in disruptive behaviors, and typically have coercive family dynamics (Roe-Sepowitz and Hickle, 2011). Additionally compared to male firesetters, females tend to have more symptoms of major depressive disorder, which may lead to mood related firesetting (Alleyne *et al*., 2016).

Considering the comorbidity of firesetting with common mood and behavioral disorders in youth inquiry into firesetting behaviors in psychiatric acute care settings must occur regardless of presenting problem.

Case Report

"Luis" was a 16-year-old multi-racial male who referred for psychiatric evaluation from a nonsecure detention setting following a fire he had set to a trash receptacle within his apartment building. After evaluation, he was subsequently psychiatrically hospitalized at a large urban public hospital for stabilization, medication management, and placement planning. Luis had several presentations to the emergency room, had been psychiatrically hospitalized 3 prior times, and had been at a state psychiatric facility for several months prior to this presentation due to other incidents of firesetting events. He had diagnoses of Autism Spectrum Disorder, ADHD- Combined Presentation, and Conduct Disorder-Adolescent subtype.

Clinical Interviewing

Clinicians may not feel equipped with the proper line of inquiry to evaluate youth who have set fires. Federal Emergency Management Agency (FEMA, 1981) [1] created an initial assessment and screener

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tool consisting of both a youth and parent interview to guide treatment planning. This was later expanded by Kolko and Kazdin (1989), who created the Children's Firesetting Interview (CFI). The CFI is used to gather a youth's reported fire interest, level of fire safety awareness, and general fire knowledge. It is completed verbally and can be modified by the evaluator to meet a youth's developmental level. The CFI is often used in conjunction with the Firesetting Risk Interview (Kolko and Kazdin, 1988) which is a caretaker-report interview of fire-related actions and history of fire related activities their child may have engaged in.

It is imperative for any acute care clinicians to use a holistic approach to obtain a thorough history via multiple reporters and not rely on clinical judgement alone (Horsley, 2021). Assessment is multi-factorial examining the socio-emotional functioning of the patient and the multi-systemic information gathered from family, the child's school for academic history, behavioral reports, and evaluations. Additionally, obtaining fire incident reports, which are often public record in the United States, add insight to the severity of the fire, the response from the fire department, and description of what may have happened.

Like presentations of suicidal and homicidal ideation in an acute care setting, inquiry about firesetting behaviors ought to be part of any clinician's intake battery. Inquiry into use can include examination into the antecedents, preparation, how the fire was set, what occurred once the fire was set, and how the individual responded to the fire (Horsley, 2021). Once flagged as a part of the youth's history, understanding the functioning of the behavior can offer a guide path for the treatment team to build a comprehensive battery of assessment of the child's firesetting behaviors.

Several times during his childhood Luis presented to the emergency by engaging in pulling the fire alarm at his school after conflicts with peers and teachers. Upon interview with the CFI, Luis reported that he began to engage in fireplay at the age of 7 years old. He stated he would light paper towels using his gas stove top in his apartment then extinguish them in a nearby sink. Luis set his first fire outside of his home at the start of adolescence after his family did not purchase him an item he wanted from a store. He set a fire to a nearby store that led to an arson and a second-degree assault charge as firefighters were injured attempting to extinguish it. He was psychiatrically hospitalized for several weeks. A month after he was discharged, he set multiple fires outside of his home after he was unable to purchase an item he wanted, setting a fire inside of pharmacy's waste basket then multiple maintenance vehicles that were located nearby. He was hospitalized at a state psychiatric hospital following these events for several months. When he turned 16 years-old, he set a fire in his room following his home internet being disconnected. Several months later set a fire in a trash can after he had broken his cell phone protector screen and attempted to

go to speak with a police officer about his problems and the officer was unable to speak with him at that time.

Fire Risk Assessment

There are not currently any universally accepted, empirically validated assessment measures for youth firesetting (Gannon and Pina, 2010; Stadolnik, 2015). During risk assessment, juveniles may tend to under report the severity of their fire setting out of social desirability and parents may not fully be aware to the extent of their child's involvement and curiosity in firesetting (Sambol *et al*., 2024a). For a firesetting risk assessment there are several tools exist to help clinicians guide treatment plans and to provide subsequent recommendations. It is recommended that providers use multiple tools in the assessment of risk, however, many tools in the research base are used primarily with adults.

The Firesetting Risk Assessment Tool for Youth (FRAT-Y) is a structured decision- making tool that provides specific criteria for estimated risk rating (low, moderate, high) on 17 risk factors that have been associated with increased risk for firesetting among youth (Stadolnik, 2010). The FRAT-Y evaluates the motivations of a fire to assist clinicians determines the possible functions of the fire set. The FRAT-Y requires formal training to be utilized by clinician.

Specifically, for firesetting behaviors, the FRAT-Y examines the factors of curiosity and interest, previous involvement in firesetting, examines the total number of fire set, and the versatility of fires such as if a youth used accelerants in multiple settings. Identification of motivations and function assist in the development of primary and secondary intervention and treatment plans.

Within the adult literature, have developed and are aiming to validate a Firesetting Questionnaire screener, however, no such validated screening measures exists in the child and adolescent literature. Self-report measures are available to evaluate interests and curiosity surrounding such as the Fire Attraction and Interest Scale (Murphy and Clare, 1996). Adapted fire assessment tools are being developed to target those who present as neurodiverse (Collins *et al*., 2022). With assessment of specific firesetting risk, it must be accompanied by a battery of additional socio-emotional functioning assessment. This assessment can be tailored to the individual patients and families. Stadolnik (2015) recommended various emotional functioning measure that assess a youth's aggression, trauma history, interpersonal functioning with friends and family, and mood symptoms.

Luis reported experiencing feelings in his stomach before setting fires and that setting a fire helped relieve anxiety and anger. He described an excitement when starting a fire. On assessments of fire setting

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interest, Luis endorsed that he starts fire when he is angry at other people, when he wants other to notice him, and that he will set fire following feelings of being rejected by others. The FRAT-Y was used while he was psychiatrically hospitalized to assess his firesetting risk. Based on his responses during the CFI, his history of fire setting, history of psychiatric hospitalizations, and behavioral dysregulation resulted in the classification of potentially dangerous use of fire, if not provided with an appropriate level of care and intensive treatment, was estimated to be in the 'HIGH' range.

Primary and Secondary Fire Prevention Interventions

Fire safety education is a vital, primary intervention for youth who engage in firesetting (Stadolnik, 2015). In a recent systematic review of primary and secondary interventions of youth who use fire found that overall, in-person fire safety education programs tend to be more effective and produce greater gains in knowledge than virtual programs (Sambol *et al*., 2024b).

For these interventions to be effective for youth they need to be developmentally appropriate and engaging also culturally and religiously sensitive as fire may be component of practice (Ellis- Smith *et al*., 2019; Lambie *et al*., 2019; Sambol *et al*., 2024a).

Primary intervention programs for firesetting youth revolve around fire safety education, increasing fire safety knowledge, and teaching fire safe practices (Kolko, 2001; Sambol *et al*., 2024a; Stadolnik, 2015). This education can include the development of a safe exit strategy if a fire were to occur in the home, facts about how quickly fire spreads, and what to do in case of a fire. These educations sessions can be flexibly adapted based on the youth's previous experience with fire and co-morbid psychiatric symptoms (Kolko, 2001; Sambol *et al*., 2024a). Sessions are conducted by trained fire marshals, and when paired with appropriate mental health treatment and adult supervision, have been shown to lead to significant reduction in firesetting behaviors (Stadolink, 2015).

Secondary interventions aim at reduction of recidivism among reoffenders; however, the literature base is unclear as not all firesetting behaviors are equal in severity and possible criminal outcome (Sambol *et al*., 2024a). For recidivistic individuals, Sambol, et al. (2024) suggest secondary interventions need to multicomponent interventions to address more coercive family dynamic and disruptive behavioral psychological etiology that may exist and maintaining these behaviors in those youth who reoffend. Youth who are more likely to engage in recidivistic firesetting are more likely to have ADHD, psychiatric disorders, disruptive behaviors, psychosocial stressors, and emotion regulation difficulties (Lambie *et al*., 2019).

Several comorbid symptoms of psychopathology exist that can be targeted using cognitive

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behavioral and dialectical behavioral therapies to treat emotional and behavioral dysregulation. Intervention goals can aim at the reduction and management of mood symptoms, anger, and distorted thoughts related to fire (Perks *et al*., 2019). Dialectical behavioral practices are effective in acute care settings and can improve impoverished skills of distress tolerance and handling dysregulated emotions that may serve as power antecedents (Thordarson *et al*., 2024). Consistent in the literature is that social skills deficits, poor interpersonal relationships with caregivers, peer rejection and isolation as well as giving into negative peer pressure among this population (Tran and Lambie, 2024). Interventions in both individual and group formats can assist these youths with potential triggering events leading to firesetting.

Providers can assist in guiding caregivers to educational resources they may not be aware in their state. The Youth Firesetting Information Repository and Evaluation System website (YFires.com) offer a state-by-state data base of juvenile firesetting programs and fire departments that can assist in providing fire safety education [1]. County Fire Coordinators, fire stations, state fire marshal's offices, and state websites can offer information on county and state specific initiatives and programs that may be available. Psychoeducational materials for patients, parents, and providers are available through the (USFA.FEMA.GOV). These materials include facts, suggestions, and pictographs to overcome literacy [2]. These pictographs range from education efforts for escape planning in the case of a fire, home safety, and stop-drop-roll if clothes were to catch fire.

Based on firesetting history and assessment of the FRAT-Y, it was recommended that Luis participate in a Fire Safety Education session while hospitalized. The local city fire department where Luis was hospitalized had a Youth Firesetter Intervention Program, in which fire marshals trained in youth firesetter intervention techniques met individually with to provide a fire safety information session. After meeting with Luis, the local fire department wrote a letter recommending Luis be considered for residential treatment at a youth firesetting specific program based on the severity of his history. Luis treatment targets on the inpatient unit focused on emotion regulation, managing his anger, and social skills training with peers. While in treatment, Luis would verbalize threats of fire setting when he needs were not immediate met or in the context of peer rejection. Goals focused on being to verbalize his needs and emotions in these situations.

Planning for Care: Residentials and Programs

For reoffending youth meditating factors of family discord, conduct-related histories, more severe psychopathology, and intentionality of fire use may require interventions that are more intensive than fire education sessions (Sambol *et al*., 2024a). Similar for adults who fire set (Horsley, 2021), it can be argued

that youth are not eligible for treatment and rehabilitation specific to their firesetting until they have reoffended and set a more substantially dangerous blaze. Youth with recidivistic firesetting are difficult to place as residential programs without fire setting specific programming may reject juveniles on the account of their history and concerns about safety. Additionally, youth in need of considerations for residential placement are likely to have comorbid conduct problems as reported by their parents and endorse having more aggression and impulsivity (Pollinger *et al*., 2005), making finding placement a challenge.

Disposition for patients who carry a firesetting history is a complex juggling act of risk assessment, identifying appropriate level of care, medication optimization, and finding care that fits the financial and insurance constraints of the family. Though there are several residential programs that exist in the United States that are targeted for firesetting, obtaining funding for the state or education department where the youth reside can be a lengthy process that can include updated psychoeducational evaluations, institutional advocacy, establishing and/or updating the youth's Individualized Educational Plans (IEPs), and eventual approval of funding for a residential level of care.

While hospitalized, Luis' IEP was updated to reflect the need for residential schooling. Luis was interviewed at specific residential treatment center that had programming for firesetting, contingent on funding of the program. While hospitalized on the inpatient unit, Luis continued to make statements that he would not be safe if he were to leave the psychiatric inpatient unit, thus he was referred for continued hospitalization at the state level. While at the state level, his educational attorney was able to obtain admittance to a residential program for youth who fireset.

Discussion

The overall aim of this paper was to showcase the complexity of youth firesetting behaviors, assessment, intervention, and aftercare in acute psychiatric care settings by using a case study of a patient who presented with a severe history of this behavior. Youth firesetting can occur at any age, with any race, and any gender (Stadolnik, 2015). Clinicians at all levels of psychiatric care must be equipped and confident to assess firesetting behaviors. However, clinicians lack the knowledge in assessing this complex behavior due to lack of training and understanding of firesetting. Self-report measures exist to examine the function of firesetting as well as examine interest and curiosity (Murphy and Clare, 1996; Gannon *et al*., 2023). More comprehensive inquiry includes a thorough history of a child's fire setting behavior, information from guardians or affiliated organizations, and can be guided by interviews such as the Child Firesetting Interview (Kolko and Kazdin, 1989). Fire risk assessment tools such as the FRAT-Y (Stadolnik, 2010) in conjunction with collateral information from patient, family, school, and fire reports can assist in

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determining function, risk factors, and assist in establishing primary and secondary treatment interventions. Providers working in acute settings must seek specialized training in this area of assessment.

For firesetting youth to be accurately screened and referred, changes must not only take place at just the clinician level, but the system that treat these at-risk youth. Current programming in Australia is created and being examined to successfully screen youth who fire set by screening juveniles and their families to successfully predict and intervene to mitigate further risk (Dadswell *et al*., 2023). Acute care setting leadership of pediatric psychiatric emergency rooms, inpatient units, and partial hospital program must establish relationships with local fire professionals and organizations that provide fire safety education. Many states have Youth Fire Setting Programs and offer Fire Safety Education sessions to those who are hospitalized, resources such as YFires (yfires.com) [3] offer a state-by-state data base to create this interdisciplinary that must include fire professionals. Higher levels of cares are understandably concerned about allowing a patient into their community or residential level of care for a youth with a known fire setting history. Conducting Fire Safety Education sessions while a youth in an emergency room or psychiatric inpatient setting may provide residential programs with the confidence needed to accept the youth in addition to a fire risk assessment, updated neuropsychological testing to provide the most accurate and current clinical picture of that youth's functioning.

Without question there is greater need for more research into these youth as well as the need for empirically validated assessments to better identify those who are likely to engage in firesetting or reoffend. Systemically, greater emphasis is needed into providing psychiatric emergency care settings with the training required to properly assess this population.

Improvements in clinician knowledge and assessments in addition to the efforts made by hospital systems to coordinate care with local fire safety program may lead to more effective intervention and outcome for youth who engage in firesetting behaviors.

Informed Consent

Signed informed consent was obtained by the guardian of the patient who is used as a case study under a different alias.

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