THE FEASIBILITY OF USING AN EVIDENCE-INFORMED SCREENING PROTOCOL TO IDENTIFY AND TREAT YOUTH FIRESETTERS IN AN OUTPATIENT PSYCHIATRIC POPULATION

BY

Submitted to the graduate degree program in Clinical Child Psychology and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Master of Arts.

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Firesetters in an Outpatient Psychiatric Population

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Abstract

This study examines the feasibility of using an evidence-informed protocol to assess and treat youth from an outpatient population for fire interest and/or previous involvement with fire. Clinicians at a nonprofit community organization were trained in the use of 3 screening tools designed to identify children and adolescents with elevated fire interest and fire involvement. Sixty-two cases were examined over a 6-month period, 53 of which were generated through consecutive intakes. The results revealed few youth with elevated fire interest or fire involvement. However, useful aspects of the screening protocol are indentified and indicate a need to continue this line of research.

Acknowledgments

      I would like to express my gratitude to those who have helped me successfully complete this project. First, I would like to thank my advisor and master's thesis chair, Eric Vernberg for his guidance from the conceptualization of this study to the revision of the current document. Also, I would like to relay my appreciation to my thesis committee members, Michael Roberts and Richard Gist for providing critical feedback and access to the breadth of knowledge and experience they both possess. Finally, to my parents Ed and Gloria Morris, I would like to give a special "thank you" for reading and editing this document as it began to take shape. I am truly grateful to all of you!

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Firesetters in an Outpatient Psychiatric Population

Humanity has often described fire as a useful tool and a destructive element of nature. Unfortunately, the positive characteristics of fire have often been misused and its deleterious effects underestimated. In the year 2008, improper use and understanding of fire led U.S. fire departments to respond to a fire every 22 seconds (Karter, 2009). Those fires caused over 3,000 civilian deaths, nearly 17,000 civilian injuries, and over $15 billion in property damage (Karter, 2009).

In any given year, estimates indicate that children in particular are responsible for igniting 58,600 fires, leading to over $300 million in property damages, 980 injuries, and upwards of 300 deaths (Flynn, 2009a; Putnum & Kirkpatrick, 2005). Of these deaths, most civilian fire fatalities were caused by children under the age of 6 years old (Flynn, 2009b). These statistics highlight the importance of learning how to effectively decrease the number of fires set by children, which the U.S. Fire Administration (2006) warns is "a growing concern" (p. 1).   This goal is important, not only because of the immediate effects of youth firesetting, but also, because of the future effects that it can have on our society. When engaged in after the age of 18, adult firesetting behavior continues to cost the nation hundreds of lives and billions of dollars. It is also significantly associated with drug use and varied psychiatric disorders (Vaughn et al., 2010).

It seems clear that there is a need to intervene with children who set fires. To date, most interventions directed toward firesetting youth have been conducted by fire service personnel (Palmer, Caulfield, & Hollin, 2007), usually taking the form of fire safety education (Kolko et al.,

2008). A number of screening tools are used by fire professionals to determine if they should

conduct the intervention themselves or refer the child to mental health services. Accordingly,

children referred by fire service personnel tend to have more severe firesetting behaviors or

firesetting in the context of rather obvious psychopathology or dysfunction. However, this is not

the only means by which mental health professionals come in contact with this population.

It is generally asserted that fewer than 20 – 25% of juveniles who have engaged in

firesetting behaviors are actually brought to the attention of fire department or mental health

officials (Stadolnik, 2000). However, many children with a history of firesetting behaviors are

referred to mental health professionals to receive services that are not related to firesetting

(Vreeland & Waller, 1978). In most of these situations, the firesetting behaviors are not even

reported to the mental health professional, highlighting the need for the mental health field, in

general, to be well versed in appropriate detection and interventions for children who misuse fire.

Meeting this detection and intervention goal requires (a) a clear definition of firesetting

behaviors, and (b) a systematic and consistent detection of the youth who engage in firesetting

behaviors.

The term "juvenile firesetter," is often used in the field of fire safety and prevention and

may generate the image of an individual under the age of 18 years who ignites a fire. However,

this does not encompass the complex issues of intent and emotionality that play significant roles

in the behavior's origin. Many experts have sought to use specific terms to help clarify

behavioral intent, which has led to a distinction between *fireplay* and *firesetting*. The U.S.

Department of Justice says that "fireplay is often used to convey a low level of intent to inflict

harm and an absence of malice" (p. 2), while those who engage in firesetting "are viewed as

willful actors who consistently use fire as an instrument of purposeful action" (Putnum &

Kirkpatrick, 2005, p. 2). A distinction has also been drawn between *fire interest* and *fire involvement*. The U.S. Department of Justice describes fire interest as "a generalized preoccupation with fire but an absence of direct participation with fire" (p. 2), while characterizing fire involvement as "fire activity that could include both fireplay and firesetting" (Putnum & Kirkpatrick, 2005, p. 2). Unfortunately, these terms are not consistently applied across the firesetting literature. Experts in the field have noted and criticized the lack of uniform definitions of firesetting terminology (Kolko, 2002; Stadolnik, 2000). Though the preceding and succeeding cited literature used varied terminology in different ways, the present project utilizes the terms *fire interest* and *fire involvement* as defined by the U.S. Department of Justice.

Although identifying firesetting among children and adolescents referred for evaluation and treatment of psychological or behavioral problems would provide useful clinical data, most mental health and social welfare organizations do not routinely inquire about youth firesetting as part of their intake process. In fact, the issue of firesetting may only come up in the context of assessing for a specific psychiatric difficulty such as Conduct Disorder. In this context, firesetting may be seen as a symptom of something else and not necessarily as a problem in and of itself. Viewing firesetting as more of an autonomous problem and less of a behavioral symptom invites one to begin assessing for it and encourages the development of specific treatments.

In the late 1980's, clinical researchers developed three tools to screen for child fire involvement (Kolko & Kazdin, 1988b, 1989a, 1989b). Although these tools have yet to be fully validated, they are, nevertheless, unique in the field because they are among some of the few measures of fire involvement and fire risk behaviors with *any* type of empirical support. Research utilizing one of these screening tools indicated that the prevalence of firesetting was as

high as 19.4% for children who were receiving outpatient psychiatric services (Kolko & Kazdin, 1988b). The current study examines an attempt to use Kolko and Kazdin's screening tools in a nonprofit community organization that provides mental health interventions to families with a variety of difficulties. This study was designed to collect information on the routine use of firesetting and fire risk assessment tools for children and adolescents referred for mental health services. Specific research questions include: 1) How often does the routine use of firesetting screening instruments identify children who set fires? 2) Do clinicians find the screening instruments useful in determining the type of treatment the child and family should receive?

Though there are international criteria describing how to screen for various diseases (Goodyear-Smith, 2002), they do not fully apply to the detection of a specific aberrant behavior. Fortunately, previous clinical research has demonstrated reliable and effective strategies for meeting this goal. Often researchers have generated prevalence rates and detected gender differences in specific behaviors by screening the consecutive admissions of inpatient and outpatient clinics. For example, when Satre and colleagues were interested in the prevalence of drug and alcohol usage they screened all the individuals admitted to an outpatient psychiatric clinic (excluding those who were admitted for chemical dependency) regardless of their reason for referral (Satre, Wolfe, Eisendrath, & Weisner, 2008). Those who demonstrated elevated alcohol and drug use were given a more extensive screening.

In another study, researchers sought to more closely examine the prevalence of cognitive deficits in psychiatric populations with bipolar disorder (Guilera et al., 2009) and schizophrenia (Rojo et al., 2010). During their procedures they tested the utility of using brief screening forms within the consecutive admissions format. Similar strategies have been used to detect depression

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in medical inpatient populations (Gantner, Schubert, Wolf, & Creps, 2003; Silverstone, 1996). In each case the researchers found their brief screens to have good clinical utility.

Others have sought to streamline their brief screens by testing the use of screening tools with fewer than 5 questions. Proude and colleagues pioneered the use of a three-item screen to measure the prevalence of excessive alcohol consumption in patients seeking exams with their general medical practitioner (Proude, Britt, Valenti, & Conigrave, 2006). Payne and colleagues (Payne et al., 2007) examined the utility of using a two-item screen for depression, comparing its results to the gold standard method of depression assessment. They found their screen to have high sensitivity and low false negative rates, 90.7% and 9.3%, respectively. The specificity of their screen was lower (67.7%) while the false positive rates were higher (32.3%). However, the authors still maintained the clinical utility of the tool because it was not being used as a means of final diagnoses, but rather, as a filter to the next step, which involved more thorough assessment techniques. Thus, they concluded their abbreviated measure, like that of Proude et al., was a useful clinical tool.

The current study followed the precedent set by the aforementioned studies, utilizing the technique of screening consecutive admissions to an outpatient clinic, regardless of the referral reason. Similar to Satre's methodology (Satre et al., 2008), participants with elevated results received additional screening. The current study also utilized screening measures that are brief when compared to previous screening tools. In fact, the initial screening measure only contained six items. Similar to the screen used by Payne and colleagues (Payne et al., 2007), the six-item screening tool asks broad dichotomous questions that, when endorsed, may overestimate the presence of firesetting. However, this initial screen, like the one described by Payne et al., is not a definitive or diagnostic measure and is necessarily followed by a more extensive screening

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procedure. The routine employment of brief screens can benefit clinicians who are often given limited time to accomplish their tasks.

Method

Participants

Participants in this study were part of a larger project that offered consultation and training in the use of evidence-informed screening and treatment protocols for children with elevated fire interest and fire involvement.

Children and families. Child and family participants were generated from 62 intakes from a nonprofit community organization (The Family Conservancy, or TFC) that provides outpatient mental health services in the Kansa City area. The children ranged in age from 2 to 17 years ($M = 9.48$, $SD = 4.63$). Sixty percent of the children ($n = 36$) were females. The racial diversity of this sample was calculated by examining the ethnic background of each child as reported by his/her parent/guardian. These data indicate that 66.7% of the children were Caucasian ($n = 40$), 21.7% were Hispanic ($n = 13$), 6.7% were African American ($n = 4$), 3.3% were Biracial ($n = 2$), and 1.7% were Asian ($n = 1$). There were two children for whom gender was not recorded. Most of these children (78.9 %, $n = 39$) received one or more diagnoses based on the criteria established in the *Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition, Text Revision* (DSM-IV-TR; American Psychiatric Association, 2000). The most prevalent were Adjustment Disorders (33.9%, $n = 21$), Attention-Deficit or Disruptive Behavior Disorders (11.2%, $n = 7$), and Anxiety Disorders (8.1%, $n = 5$). See Table 1 for a list of demographic and mental health characteristics.   Fifty-three of these families (the Consecutive Intake Sample) were grouped for separate analyses because their data were collected through consecutive intake dates. The additional nine cases that were not collected consecutively, were

generated when the clinicians administered the screening protocol to their preexisting child and adolescent clients. Results including these cases are referred to as the Overall Sample. The basic demographic and mental health characteristics of the Consecutive Intake Sample did not vary significantly from the Overall Sample.

Table 1. Overall Sample Demographics and Mental Health Characteristics

Variable	% (N)
Sex	
Female	61.3 (38)
Male	38.7 (24)
Race	
White/Caucasian	66.7 (40)
Hispanic American	21.7 (13)
Black/African American	6.7 (4)
Biracial	3.3 (2)
Asian American	1.7 (1)
Child Age*	9.5 (4.3)
DSM-IV Diagnoses	
Adjustment Disorder	33.9 (21)
Anxiety Disorder	8.1 (5)
Disruptive Behavior Disorder	3.2 (2)
Attention-Deficit/Hyperactivity Disorder	3.2 (2)
Oppositional Defiant Disorder	1.6 (1)
Conduct Disorder	1.6 (1)
Intermittent Explosive Disorder	1.6 (1)
Major Depressive Disorder	3.2 (2)
Mood Disorder, NOS	1.6 (1)
Sexual Abuse of Child	1.6 (1)
Asperger's Disorder	1.6 (1)
Reading Disorder	1.6 (1)
None	21.1 (13)
Unavailable or missing	16.1 (10)
GAF*	65.9 (8.8)

Note. *= Mean and Standard Deviation; The N's vary due to missing data.

All families included in screening for fire involvement included at least one child under the age of 18 and his/her legal guardian(s). See Table 2 for the inclusion criteria of each screening measure. There were no exclusion criteria specific to this project.

Table 2. Inclusion Criteria for Screening Tools

Fire History Screen (FHS)

1. Child must be younger than 18 years of age at the time of screen administration.

Firesetting Risk Interview (FRI)

1. **Children younger than 7 years of age:** endorsement of 1 or 2 quantitative items on the FHS and/or Clinician judgment that child/family would benefit from additional screening.
2. **Children 7 years and older:** endorsement of 3 or more quantitative items on the FHS and/or Clinician judgment that child/family would benefit from additional screening.

Children's Firesetting Interview (CFI)

1. **Children younger than 7 years of age:** endorsement of 1 or 2 quantitative items on the CFI and/or clinician judgment that child/family would benefit from additional screening.
2. **Children 7 years and older:** endorsement of 3 or more quantitative items on the CFI and/or Clinician judgment that child/family would benefit from additional screening.

Clinicians. Eleven TFC clinicians participated in this study. TFC clinicians were an experienced group of therapists who had masters-level training or higher in professional mental health services. They had extensive experience in clinical assessment and treatment with children, adolescents, and their families.

The Family Conservancy (TFC) is a social welfare organization with a 125-year history of helping children and families of the greater Kansas City area. In 2008, following its mission of "Championing the healthy development of children by supporting parents and families and promoting quality early education" ("Mission, Vision & Values," 2009), this organization influenced the lives of over 58,000 families, by providing services such as direct child and family counseling, parenting classes, and advocacy services (The Family Conservancy, 2008).

In recent years prior to this study, TFC had been in close communication with their local fire safety and prevention authorities and had been a treatment referral resource for children with fire involvement.
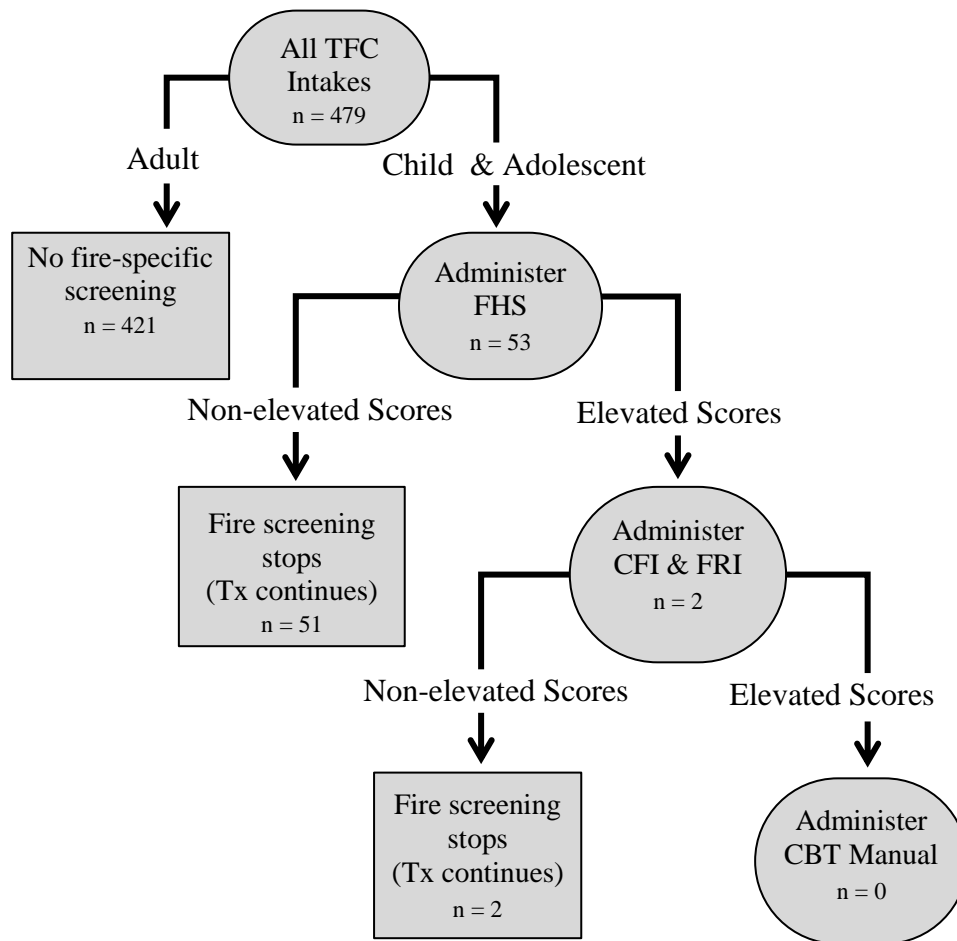
Procedure

Children and families. All child and adolescent clients of TFC were assigned a clinician who conducted an in-person intake interview that focused on gaining more information about the clients in order make preliminary diagnoses and appropriate treatment plans. TFC incorporated questions from the Fire History Screen (FHS; Kolko & Kazdin, 1988b) into their standard intake questionnaires completed by parents. The clinicians were asked to use the results of the FHS and their clinical judgment to determine if further screening was needed. See Table 2 for the suggested inclusion criteria for each screening measure. Approximately two months after the start of this project, none of the parent-completed screens resulted in elevated scores for fire interest or firesetting. Consultation with local fire service personnel generated the recommendation that each child client be directly asked to report on their own fire involvement. After discussions with the clinicians and researchers on this project, we decided it might be beneficial to collect FHS information directly from each child concurrently with the original FHS information being collected from the parent/guardian. Thus we created a separate FHS on which to record the children's answers. This form addressed all but one of the questions (*How severe was the damage?*) posed on the original FHS.

If a TFC clinician determined that further assessment was appropriate, he/she administered the Children's Firesetting Interview (CFI; Kolko & Kazdin, 1989b) to the child and the Firesetting Risk Interview (FRI; Kolko & Kazdin, 1989a) to one parent/guardian. Both assessment tools were administered separately using a one-on-one format. Clinicians were given

guidelines on scores for subscales of the CFI and FRI that would be considered to be above

average. Similar to the protocol for the FHS, the clinicians were asked to use these scores and

their clinical judgment to determine if further fire-specific intervention was warranted. See

Figure 1 for a flow chart of the procedure. Clinicians received additional training on how to

administer and use a specialized cognitive behavioral treatment protocol designed for children

who misuse fire.

Figure 1. Flow Chart of Screening Protocol for Consecutive Intakes

The protocols in this study were administered as part of TFC's ongoing assessment and

treatment procedures and not in the context of an experimental design. The family records used

to gain demographic and treatment information were generated from existing TFC files.   As such, the Institution Review Board determined that it was unnecessary for each family to provide consent that was specific for this project. Instead, each family completed the standard consent-for-treatment forms completed by all TFC families. There was no direct contact between those conducting this study and TFC clients.

Clinicians.   All clinicians participating in this study received a two-hour, in-person training on the administration and use of the FHS, CFI, and FRI. This training was conducted by a doctoral psychologist and pre-doctoral graduate students. This team provided additional assessment and other types of support to TFC clinicians through biweekly consultations.

Measures

Fire History Screen (FHS). The Fire History Screen (FHS) was originally developed by Kolko and Kazdin (1988b). It included seven items and was used to assess the prevalence and severity of fire involvement and its related behaviors in children ages 6-13 years from both inpatient and outpatient psychiatric populations. This screen was created by adapting and adding questions to the Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Form P (K-SADS-P; Chambers et al., 1985).   Intervention studies have supported the reliability and validity of this screening measure in assessing clinical and nonclinical child populations (Kolko, 2001; Kolko, Day, Bridge, & Kazdin, 2001; Kolko & Kazdin, 1988a). Dadds and Fraser (2006) shortened the FHS to 6 items and reported that this modification accurately identified fire interest and firesetting within a general population of Australian children. The modified FHS utilized by Dadds and Fraser presented four quantitative and two qualitative items. The six-item FHS was used with the parents/guardians in this study. Five of these items were used to construct a FHS that was administered directly to the children and adolescents. The questions

were essentially the same, but the words were changed to ask for self-report information. See

Table 3 for a list of all items on this screening measure.

Table 3. Fire History Screen (FHS) Questions

Parent	Child
1. Does your child like fires? (*Yes, No*)	1. Do you like fires? (*Yes, No*)
2. Does your child play with matches? (*Yes, No*)	2. Do you play with matches? (*Yes, No*)
3. Has your child burned something or set anything on fire? (*Yes, No*)	3. Have you burned something or set anything on fire? (*Yes, No*)
4. What was burned?	4. What kind of things have you burned?
5. How many times has your child set a fire?	5. How many times have you burned something?
6. How serious were the damages? (*Very Minor, Minor, Moderate, Severe, Very Severe*)	

Children's Firesetting Interview (CFI). The Children's Firesetting Interview is a

46-item interview for children developed by Kolko and Kazdin (1989b) and used to provide

both quantitative and qualitative information about fire involvement and fire-related

behaviors for children ages 6-13 years old. This measure uses responses from the child to

produce informational scores across six dimensions – *Curiosity about fire*, *Involvement in*

fire-related activities, *Knowledge about things that burn*, *Fire competence*, *Exposure to*

models/materials, and *Supervision/discipline*. Reliability tests produced Cronbach's alphas

for each domain ranging from .39 to .74. The alpha for the overall scale was .68. Validity

tests demonstrate that the CFI is capable of accurately distinguishing juvenile firesetters from

juvenile non-firesetters by illustrating significantly elevated mean scores in the *Curiosity*

about fire, *Involvement in fire-relate activities*, and *Exposure to models/materials* domains.

In the United Kingdom, The Cognitive Centre Foundation currently uses a revised version of

the CFI to assess its child and adolescent clients for fire interest and fire involvement (D. J.

Kolko, personal communication, November 6, 2009). This version was utilized in the

current study as well. See Table 4 for a list of all items on this screening measure.

Table 4. Children's Firesetting Interview (CFI) Questions

1. How curious are you about fire (i.e. want to know more about it?)
2. How much do you think about fire?
3. How much do you want to play with fire?
4. How special or magical is fire to you?
5. How excited or interested do you get when people talk about fires?
6. How much do you like to visit exhibits or movies about fires, or watch a real fire?
7. How much do you like to read and learn about fire, and the right way to use it?
8. How much do you like to talk about fire, rather than other things?
9. What do you like most about fire?
10. When you think about fire, what do you think about?
11. Did you ever set off a fire alarm when there really wasn't any fir or smoke around? If yes; How many times?
12. Did you ever hide matches, lighters, or other fire-starting materials? If yes; How many times?
13. Did you ever leave burn marks on things in your home? If yes; How many times?
14. Did anyone, like someone from the school, the police, or your neighbors, ever tell someone in your family about your playing with fire? If yes; How many times?

I WANT YOU TO TELL ME IF IT WILL NOT BURN WHEN YOU TOUCH IT WITH A LIGHTED MATCH.

15. Chalk that you would use to write on a blackboard
16. Aluminum cans, like a pop/soda/Coke can
17. Pieces of wood
18. Glass, like a window
19. Clothes, like a shirt of a pair of socks
20. Bricks that are made to build houses or buildings
21. Steel or metal, like a matchbox car or the parts of a large building
22. Petrol used to make cars go
23. Orange juice or apple juice
24. Skin like on your hand or face
25. Chocolate milk
26. Baby lotion, like mum or dad would put on a small child
27. Shampoo for your hair
28. Bleach that you might use to clean clothes
29. A couch like the kind you sit on

30. Are there any dangers to playing with fire?
31. If you were going to light a few pieces of wood in a fireplace using a <u>match</u>, what steps would you follow?
32. How would you put out this fire in the fireplace?
33. Now I want you to pretend that this is a real pack of matches. Let's say that you were alone. How would you light a match if you had to? (Don't worry, these matches won't really light or burn.)
34. What would you do if your clothes caught on fire?
35. Imagine that you're sitting on your bed when a fire starts in your house. You start to cough and your eyes are burning, and you can't leave through a window. Tell me everything you would do.
36. Has your family ever discussed a plan to follow if there was a fire in your house? (If yes: What is it?)
37. Pretend that you are home all alone and that you suddenly see a fire in one of the rooms. Here's a real telephone. How would you use the telephone to get help? What would you do? (Act it out; Show me, don't tell me)

Table 4. (cont.) Children's Firesetting Interview (CFI) Questions

38. How many of your friends smoke?
39. How many of your friends have you seen playing with matches or lighters, or setting fires?
40. Are you permitted to use matches or lighters at home? What for?
41. How often are you with friends who smoke?
42. How often do you smoke or experiment with smoking?
43. How often are you supervised by an adult when you are in your house?
44. How often are you disciplined at home when you do something that you're not supposed to do?
45. How often are you disciplined by other people outside of your home when you do something you're not supposed to do?
46. How often are you supervised by an adult or an older brother/sister when you are at your friends' homes (i.e., someone who is watching over you)?

Firesetting Risk Interview (FRI). The Firesetting Risk Interview (FRI) is an 86-item structured interview for parents used to provide both quantitative and qualitative information about fire involvement and fire-related behaviors for children ages 6-13 years old (Kolko & Kazdin, 1989a). This measure uses parent-reports to produce informational scores across 15 dimensions. Eight dimensions (*Curiosity about fire, Involvement in fire-related activities, Early experiences with fire, Exposure to peer/family models, Fire safety knowledge, Fire safety skill, Complaints/concerns about the child's fireplay*, and *Parental fire preparation*) are classified as items "specific to fire." The other seven items (*Expression of positive and negative behaviors, Supervision/discipline, Frequency and efficacy of harsh punishment*, and *Frequency and efficacy of mild punishment*) are classified as items "not specific to fire." Reliability tests produced Conbach's alphas for each domain ranging from .44 to .85. The overall alpha for individual items was .75, while the overall alpha for the 15 dimensions was .66. Validity tests demonstrate that the FRI may be useful in distinguishing juvenile firesetters from juvenile non-firesetters. Further analyses indicate that, at minimum, scores from 4 of the dimensions - *Involvement in fire-related activities, Curiosity about fire, Complaints/concerns about the child's fireplay,* and *Expression of Negative Behaviors* – can be used to correctly identify juvenile firesetters with an overall accuracy of 81.5%. Similar

to the CFI, Kolko reports that a revised version of the CFI is currently being utilized in the

U.K. by The Cognitive Centre Foundation (D. J. Kolko, personal communication, November

6, 2009). This version was used in the current study as well. See Table 5 for a list of all

items on this screening measure.

Table 5. Firesetting Risk Interview (FRI) Questions

1. How curious is he/she about fire?
2. How much does he/she want to play with fire?
3. How much does he/she think that fire is special or magical?
4. How much does he/she get excited or fascinated when fires or fire-related topics are mentioned in everyday conversation?
5. How much does he/she like to talk about fire?
6. How much does he/she want to visit exhibits or watch movies about fires, or to actually watch a real fire?
7. How much does he/she read and attempt to learn about fire and its uses?
8. To what extent does your child understand his/her own behavior, in general?
9. To what extent does he/she know different facts about fires or firefighters?
10. To what extent does he/she understand why playing with fire is dangerous?
11. To what extent does he/she know what things will burn and what things won't?
12. To what extent does he/she know how to use matches or lighters correctly?
13. To what extent does he/she know what to do if something catches fire suddenly?
14. To what extent has he/she been taught to use matches or lighters correctly?
15. To what extent does he/she play safely when alone or with others?
16. To what extent is he/she able to light a fire and put it out correctly?
17. To what extent is he/she allowed to use matches or lighters at home?

HOW OFTEN DOES HE/SHE EXPRESS HIMSELF/HERSELF IN EACH OF THE FOLLOWING WAYS:

18. By touching or using some form of pleasant physical contact?
19. By complimenting or praising others?
20. By laughing or using humour/jokes?
21. By providing attention to others?

HOW OFTEN DOES HE/SHE EXPRESS HIMSELF/HERSELF IN EACH OF THE FOLLOWING WAYS:

22. By making pleasant conversation?
23. By hitting or hurting others?
24. By criticizing or disapproving of others?
25. By giving orders or making threats?
26. By ignoring others or not doing anything at all?
27. By yelling or screaming at others?
28. By being stubborn or not minding others (not following instructions)?
29. By destroying property?
30. By crying or whining?
31. By being cruel to animals?
32. By threatening to hurt or actually doing something to hurt himself/herself?
33. How often is he/she supervised at home by you or another adult, in general?
34. How often do you supervise him/her at home
35. How often is he/she supervised by an adult when he/she is with friends?
36. How often is your child disciplined at home?
37. How often does your child receive attention from family members?

Table 5. (cont.) Firesetting Risk Interview (FRI) Questions

38. How often is your child disciplined by others outside the home (i.e., adults in the community, teachers, etc.)?
39. How often do you receive complaints about his/her behavior, in general, from others in the community?
40. To what extent do you receive complaints about his/her play with fire from others in the community?
41. How often do you worry about him/her playing with fire when he/she is left unattended?
42. How available are matches, lighters, or other fire-starting materials at his/her school or in his/her friends' homes?
43. How available are matches, lighters, or other fire-starting materials in or around your home?
44. How often is he/she in the presence of friends who smoke anywhere outside the home (e.g., school, friends' homes)?
45. How often is there cigarette or pipe smoking in your home?
46. How many times have other family members been burned or hurt because of a fire in the last year?
47. How many people who live at home including yourself, smoke cigarettes or pipes?
48. How many family members have an interest or fascination with fire?
49. How many family members has he/she observed playing with matches or lighting fires in the last year?
50. How many other persons in your neighborhood have been burned or hurt because of a fire in the last year?
51. How many times has he/she ever been burned or hurt because of a fire in the last year?
52. How many times have other family members been burned of hurt because of a fire in the last year?
53. How many of his/her friends smoke or experiment with smoking?
54. How many fires have there been in your neighborhood in the last year?
55. How many times has your child ever hidden matches, lighters, other fire-starting materials?
56. How many times has your child left burn marks on things in your home?
57. How many times has anyone, like school officials, the police, or your neighbors told someone in your family about your child's playing with fire?

PLEASE ANSWER NO (0) OR YES (1) FOR THESE QUESTIONS:

58. Do you usually give instructions about fire to the babysitter or others who take care of your children?
59. Do you know the phone number for the neighborhood fire department?
60. Do you have access to a fire extinguisher?
61. Is there a smoke alarm in your home?
62. Have you ever received any formal fire education or training?
63. Have you every received any guidance or general information about children playing with fires?
64. Have you ever told your child why it is bad to play with fire?
65. Have you ever practiced fire-escape drills with your child?
66. Were there any smokers living in your home more than 1 year ago?
67. Did any members of your family play with matches or lighters, or light fires more than 1 year ago?
68. Was your child exposed to any neighborhood fires or to other people who played with fire more than 1 year ago?
69. More than1 year ago, did your child every play with matches/lighters or fire?
70. Did you child ever show any special interest in fire more than1 year ago?

FOR EACH OF THE DIFFERENT METHODS OF DISCIPLINING THIS CHILD LISTED BELOW
PLEASE INDICATE: a) How often each is used,   b) How effective/helpful it usually is:

71 & 72. Isolation or some form of quiet time
73 & 74. Taking away things or privileges
75 & 76. Extra work or chores to do
77 & 78. Extra support, attention, or affection
79 & 80. Discussion and review of behavior
81 & 82. Spanking, slapping or some other form of physical punishment
83 & 84. Reprimands, yelling or screaming
85 & 86. Threatening or Scaring

Fire History Screen (FHS)

TFC received a total of 479 intakes during the six-month period of this study. Fifty-three of these intakes were from individual families with a child who was referred to TFC for mental health services. The clinicians were asked to administer the six-item parent-report FHS to one parent/guardian from every child intake. They collected this information from 83.0% ($n = 44$) of the intakes. Three of the four quantitative questions for this measure were answered *Yes* or *No.* Of the 44 responses for the first question (*Does your child like fire?*) 9.1% ($n = 4$) of the parents/guardians responded *Yes.* Of the 44 responses for the second question (*Does your child play with matches?)*, 2.3% ($n = 1$) responded *Yes.* There were 43 recorded responses for the third quantitative question (*Has your child burned something or set anything on fire?*). Only one parent answered *Yes.* When asked the forth question (*What was burned?*), one parent said "fireworks" and a second parent reported various objects had been thrown into a fire pit. When asked to qualify the severity of damages caused by their child's fire involvement (*Very Minor, Minor, Moderate, Severe*, or *Very Severe),* one of the 40 respondents (2.5%) answered *Very minor.* The remaining 97.5% did not give a response because the question was not applicable to their child.

As noted previously, two months in the study period, the clinicians were also asked to administer the five-item child-report FHS directly to each child client from every child intake. Nearly one quarter (24.5%; $n = 13$) of the children completed this task. As with the six-item parent-report FHS, three of the four quantitative questions were to be answered *Yes* or *No.* Of the clients that were administered this FHS, 15.4% ($n = 2$) responded *Yes* to the first question (*Do you like fire?*), all responded *No* to the second question (*Do you play with*

matches?), and 23.1% (*n* = 3) responded *Yes* to the third question (*Have you set anything on fire?*). When asked to report what kinds of things they have burned, 23.1% (*n* = 3) of the children gave responses such as *string, paper*, and *sticks*. See Table 6 for parent and child FHS endorsements from both the Overall and Consecutive Intake Samples.

Table 6. Endorsement of Individual FHS Items

	FHS Items					
Reporter	Like fires? % (*n*)	Play with matches? % (*n*)	Something burned? % (*n*)	Burned item % (*n*)	Number of fires % (*n*)	Severity of damage % (*n*)
			Overall Sample, *n* = 62			
Parent	7.7 (4) *n* = 52	1.9 (1) *n* = 52	3.9 (2) *n* = 51	5.9 (3) *n* = 51	2.1 (1) *n* = 48	4.3 (2) *n* = 47
Child	20.0 (3) *n* = 15	0 (0) *n* = 15	26.7 (4) *n* = 15	26.7 (4) *n* = 15	15.4 (2) *n* = 13	
			Consecutive Intake Sample, *n* = 53			
Parent	9.1 (4) *n* = 44	2.3 (1) *n* = 44	2.3 (1) *n* = 43	4.7 (2) *n* = 43	0 (0) *n* = 41	2.5 (1) *n* = 40
Child	15.4 (2) *n* = 13	0 (0) *n* = 13	23.1 (3) *n* = 13	23.1 (3) *n* = 13	9.1 (1) *n* = 11	

Identification of Firesetters

Overall Sample. Data were collected on the referral reason for each of the 62 child intakes. This information was originally recorded by the clinician in their assessment report under the heading entitled *Presenting Problems*. These data were then dichotomized as either being or not being a fire involvement referral. Any reference to fire involvement in the *Presenting Problems* section of the client file constituted confirmation of a referral for fire involvement. None of the clients in this sample had been referred due to fire

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involvement. Collectively, the parent- and child-report FHS measures identified 8 clients who endorsed some level of fire interest or involvement. See Table 7 for the individual cases with endorsed FHS questions. Parent-child concordance for the identification of firesetting behavior was calculated at 55.6%. Concordance for the identification of playing with matches (matchplay) and having an interest in fire were 100% and 80%, respectively. See Table 8 for parent-child correspondence rates for FHS endorsements.

Table 7. Cases with Endorsed FHS Items

Case No.	Reporter	Child age	FHS Items					
			Like fires?	Play with matches?	Something burned?	Burned item	Number of fires	Severity of damage
1	Parent	17	N	N	N	n/a	0	n/a
	Child		Y	N	Y	ID card	1	
2	Parent	11	N	N	Y	Leaves	1	Very Minor
	Child		–	–	–	–	–	
3	Parent	7	Y	Y	N	n/a	0	n/a
	Child		–	–	–	–	–	
4	Parent	12	N	N	N	n/a	0	n/a
	Child		N	N	Y	Leaves	5	
5	Parent	11	Y	N	N	n/a	0	n/a
	Child		Y	N	Y	Sticks, paper & hand	–	
6	Parent	7	N	N	Y	Fireworks	–	Very Minor
	Child		N	N	N	n/a	0	
7	Parent	4	Y	N	–	"Stuff" in fire pit	–	–
	Child		N	N	Y	String, Styrofoam cup, paper & "stuff" (in campfire)	–	
8	Parent	5	Y	N	N	n/a	0	n/a
	Child		Y	N	N	n/a	0	

Note. A dash indicates missing data

Table 8. Parent-Child Correspondence for FHS endorsements

Variable	Agreement % (N)		Disagreement % (N)		Total N	Concordance
	Both Yes	Both No	Parent Yes	Child Yes		
Firesetting	0.0 (0)	55.6 (5)	11.1 (1)	33.3 (3)	9	55.6
Matchplay	0.0 (0)	100.0 (10)	0.0 (0)	0.0 (0)	10	100.0
Interest in fire	20.0 (2)	60.0 (6)	10.0 (1)	10.0 (1)	10	80.0

Consecutive Intake Sample. Of the 44 parents who completed the six-item FHS, two (4.5%) indicated their child had sufficient fire interest and fire involvement to be given additional screening using the FRI and CFI. This screen independently identified two clients who would have otherwise gone undetected during the initial assessment process. Of the 13 children who completed five-item version of the FHS, two (15.4%) indicated fire interest and three (23.1%) reported having burned something. Results also demonstrated that one (7.7%) of the clients produced a score indicating sufficient fire involvement and fire interest to warrant further screening with the FRI and CFI. This screen independently identified one client who would have otherwise gone undetected during the initial assessment process. This client was one of the two clients identified by the FHS based on parent-report.

Demographic and Mental Health Information

Of the three clients with elevated FHS scores, 33.3% ($n = 1$) were male. The male child was an 11-year-old Caucasian. One of the females was a 12-year-old African American who was diagnosed with Adjustment Disorder with Mixed Anxiety and Depressed Mood. The other female was a 17-year-old Hispanic adolescent with a diagnosis of Post-Traumatic Stress Disorder. All diagnoses were based on DSM-IV criteria.

Children's Firesetting Interview (CFI)

The male and females with elevated FHS scores were administered the CFI. Five of its six dimensions did not yield any elevated scores. However, the 17-year-old had a score outside of the normal range for the *Discipline/Supervision* dimension. The 17- and 12-year-olds both had an elevated score within the *Exposure to Models* dimension.

Fire Risk Interview (FRI)

FRI data from two parents/guardians were recorded. The parent/guardian of the 12-year-old did not produce scores outside of the average range for any of the 15 dimensions except *Early Experiences with Fire*. The parent/guardian of the 17-year-old produced scores outside the normal range for both the *Fire Skill/Competence* and *Early Experiences with Fire* dimensions.

Discussion

This study sought to examine the feasibility of utilizing an evidence-informed screening protocol to systematically and consistently detect children with elevated fire interest and/or involvement. An additional goal was to collect exploratory data about the demographic and mental health characteristics of the children identified through the screening process. Both of these objectives were designed to help inform professionals' knowledge of children who misuse fire for the purposes of improving treatment for these individuals.

The project's use of its protocol to screen consecutive intakes during a six-month period yielded a limited number of children with elevated fire interest and/or involvement. Though the FHS did identify some elevations, the numbers were fewer than expected. Previous research found the prevalence of both fire interest and fire involvement in an

outpatient population to be 19.4% (Kolko & Kazdin, 1988b). This leads to the question of why this current study yielded such different results.

One reason for the lower-than-expected results may be related to this study's use of the FHS. At the beginning of this study, the protocol was only to administer the FHS to the parent/guardian. This seemed justified due to the 94% overall correspondence between outpatient parent/guardian and child reporters who used this measure (Kolko & Kazdin, 1988a). However, obtaining individual reports directly from the child clients revealed additional information, demonstrated by the higher rates of endorsement of fire-related thoughts and behaviors on all but one of the measure items. Although the research by Kolko and Kazdin led to predictions of little variance between parent and child responses, the results from this study encourage a reevaluation of this, at least until a greater number of participants can be sampled. For this reason, the larger ongoing project will continue to administer the FHS to both parents and their children. It is thought that this may result in the identification of a larger percentage of elevated fire interest and/or fire involvement and thus the need for more CFI and FRI administrations.

An examination of the demographic and mental health characteristics of the Kolko and Kazdin (1988a) population and the current study population may also explain some of the difference in results. Table 9 provides a comparison between the two populations, showing that the current study contains a larger proportion of females (61.3%) than the Kolko and Kazdin study (25.6%). Given that a majority of firesetters are males (Dadds & Fraser, 2006; Flynn, 2009b; Kolko & Kazdin, 1988b), the high proportion of females in the current study likely contributed to endorsements of fire interest and fire involvement that were less than expected. Other factors that likely contributed to the endorsement levels, are

the mental health characteristics. Unlike the Kolko and Kazdin study, in which 53% of the sample received a diagnosis indicating clinically significant externalizing behavior, only 6.4% of the current study sample received a diagnosis indicating externalizing behavior problems. Due to the association between firesetting and externalizing behaviors, a sample with a low proportion of externalizing behavior characteristics would be expected to have a lower prevalence of firesetting when compared to samples with a high proportion of externalizing behavior characteristics.

Table 9. Comparison of Population Characteristics

Variable	Kolko & Kazdin (1988a) % (N)	Current Study % (N)
Sex		
Male	74.4 (122)	38.7 (24)
Female	25.6 (42)	61.3 (38)
Race		
White/Caucasian	52.4 (86)	66.7 (40)
Black/African American	47.6 (78)	6.7 (4)
Hispanic American	--	21.7 (13)
Biracial	--	3.3 (2)
Asian American	--	1.7 (1)
Child Age*	10.2 (2.4)	9.5 (4.3)
DSM Diagnoses**		
Conduct Disorder	18.9 (31)	1.6 (1)
Adjustment Disorder	15.3 (25)	33.9 (21)
Attention Deficit Disorder/ADHD[a]	20.1 (33)	3.2 (2)
Oppositional Disorder/ODD[b]	14.0 (23)	1.6 (1)
Major Depression	6.7 (11)	3.2 (2)
Anxiety Disorder	6.7 (11)	8.1 (5)
Other	9.8 (16)	32.2 (20)
Deferred or Unavailable	8.5 (14)	16.1 (10)

Note. * = Mean and Standard Deviation; The N's vary due to missing data.
   ** = Diagnostic categories from the Kolko and Kazdin (1988a) study were based on DSM-III criteria. Diagnostic categories from the current study were based on DSM-IV criteria
   [a] = Attention-Deficit/Hyperactivity Disorder
   [b] = Oppositional Defiant Disorder

Another reason the results may be different than expected could be this study's definition of a "child and adolescent client." Not every child that was seen by a TFC clinician received the fire screens. Only those youth identified as the primary client were administered the protocol. If an adult came to the clinic for family or marriage counseling, his/her child may have received treatment as part of that case, without being screened for fire interest and/or involvement. However, if the clinician determined that the child would benefit from individual intervention, the child was assigned his/her own client ID and then administered an individual assessment, which included the fire screening. Thus, there were children who received services at TFC, but did not receive any fire screening. The lower than expected prevalence of fire interest and/or fire involvement may be due, in part, to the fact that not all of the children served by TFC were able to be screened.

There is also the possibility that the current sample of TFC clients is not representative of most outpatient youth populations. Perhaps there are regional differences in the Midwestern American population sampled by TFC and that of the Eastern American populations reported by Kolko and Kazdin (1988b). Vaughn and colleagues found such differences in adult firesetting behavior (Vaughn et al., 2010), implying the need to take this into consideration when comparing youth populations from different areas of the United States. Perhaps Kolko and Kazdin's findings are no longer an accurate characterization of this group. Before such conclusions are reached, however, it would be beneficial to obtain additional information. This may be best accomplished by collecting data from other organizations in the American Midwest and Eastern regions to examine the extent to which the results of this study may be regionally representative. If additional studies produce

results similar to the current study, it may indicate that expectations should be altered to reflect current norms.

The findings of the current study imply that using the screening tools may be advantageous, depending on how they are utilized. For example, the FHS seems to be more useful when it is administered to both the child and parent. As seen in the results, parent and child reports produced divergent endorsements. Though the creators of the screen found a high rate of correspondence between parent and child FHS endorsements such as firesetting (95.6%; Kolko & Kazdin, 1988a), the rates for firesetting in the current study were much less (55.6%). Though the rates should be viewed with caution, due to the small number of parent-child pairs that actually answered each item, it is not likely that future participants will have higher rates, because research has confirmed that when endorsing conduct problem behaviors, parent-child correspondence is usually low (Colins, Vermeiren, Schuyten, Broekaert, & Soyez, 2008; Hartung, McCarthy, Milich, & Martin, 2005) especially if the child is female (Knox, King, Hanna, Logan, & Ghaziuddin, 2000). Thus, the use of both FHS versions will likely provide the most comprehensive information about child fire interest and fire involvement.

Though useful information was gathered through with the screening protocol, a full understanding of its utility will likely not be gained until data from a larger sample can be analyzed. For example, two of the three youths with elevated fire interest or fire involvement had some type of internalizing psychiatric diagnosis. Previous research (Heath, Hardesty, Goldfine, & Walker, 1985) indicates that more externalizing diagnoses would be expected in a group of youth firesetters. However, Dadds and Fraser (2006) found that female youth firesetters tended to have more internalizing disorders than their firesetting male

counterparts. It is difficult to draw a conclusion on this point from the current study. As the project continues, it will likely identify more children in this group and the analysis of demographic variables and mental health characteristics will become more meaningful. TFC clinicians provided qualitative evidence of the utility of the screening protocol when they reported the ease of using it and that they often felt more confident in their course of treatment after assessing their client's fire interest and fire involvement. Therefore it seems appropriate to continue this and other projects to collect more data.

While conducting this study it became clear that the formation of formal and informal coalitions with agencies such as local fire departments, police departments, and juvenile court system services would likely be needed to match youth with appropriate intervention. Many of the researchers and clinicians from this project encountered personnel from other community and public safety organizations that where enthusiastic about the components of the project and were proactive in initiating protocols to refer appropriate youth in our direction.

As mentioned above, the small sample size was a limitation in this study. As the larger study continues, additional information will be gathered and the results reanalyzed. During the preparation of this manuscript the clinicians from this study have reported an increase in the number of clients with fire interest and/or involvement. Thus, the expectation is that additional information will be available in the near future. If, after screening a large number of children, the prevalence of fire interest and fire involvement are still negligible, seeking other forms of assessment and intervention may be appropriate.

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