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School survey results Slave Lake, AB 2012 technical report

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SCHOOL SURVEY RESULTS SLAVE LAKE, AB 2012

Technical Report

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THE SCHOOL SURVEY

Describing the Area

The Slave Lake area includes the Town of Slave Lake, the Sawridge First Nation and part of the Municipal District of Lesser Slave River No. 124, with the hamlets of Canyon Creek, Widewater and Wagner. It is located in the heart of northern Alberta, 250 km northwest of Edmonton, on the eastern side of Lesser Slave Lake.

The area is home to approximately 7,427 residents. The Town has 90% of the area's population and acts as regional centre, with retail, education, health, financial, government, and transportation services. Oil and forestry industries are prevalent in the region. Tourism is increasing mainly due to the beautiful and road-accessible Lesser Slave Lake.

The May 2011 Slave Lake Fires caused the evacuation of the entire population of the Town of Slave Lake, the Sawridge First Nation and a number of residents of the Municipal District of Lesser Slave River No. 124. There was one death of a helicopter pilot but no deaths or major injuries occurred among area residents. The impact of these fires included the destruction or damage of 56 residences and 1 commercial building in the Municipal District communities. About one third of the town was affected. The flames consumed over 400 homes, 3 churches, 19 non-residential buildings, and the Government Centre, which included the municipal library, town administrative offices, and most of the regional provincial government offices. Overall, the magnitude of this wildfire event is unprecedented in recent provincial or national history.

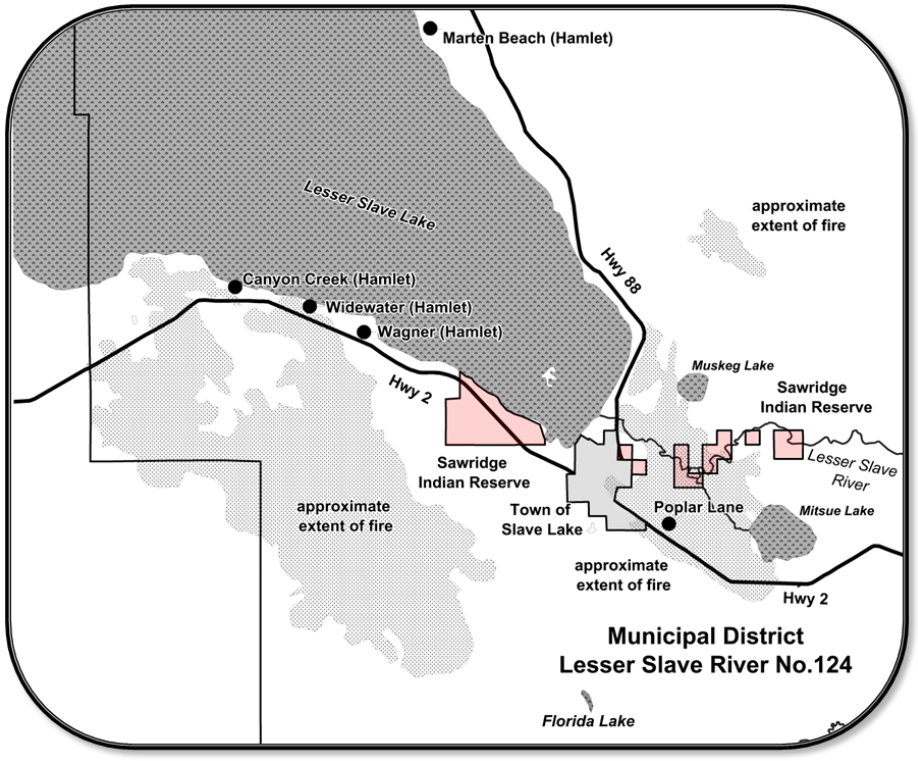


Figure 1 . Slave Lake Region

SURVEY INSTRUMENTS

The objective of the school survey was to examine the impacts of the fire on children, and particularly the manifestation of post-traumatic stress and coping difficulties, and to explore changes in these characteristics through time. Post traumatic stress disorder (PTSD) is an anxiety disorder characterized by reliving a psychologically traumatic situation, long after any physical danger involved has passed, through flashbacks and nightmares. Other psychiatric, social, or behavioural disorders may also manifest as a result of such trauma. The research team provided input into the questionnaire design over the months of August 2011 to November 2011. Where possible, previously tested and robust survey items were incorporated into the body of the questionnaire. In this case, we included two well-known and robust screening instruments: one to screen for post traumatic stress, and the other to identify strengths and difficulties. The school survey questionnaire consisted of three sections, namely: Demographic Information, The University of California at Los Angeles Post-Traumatic Stress Disorder DSM-IV for Children and Adolescents (UPID, Pynoos et al. 1998; Steinberg et al. 2004), and the Self-Reported Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; 2001).

The UPID is a widely used paper and pencil instrument for the assessment of trauma exposure and post traumatic stress symptoms among children and adolescents. The 48-item instrument is designed for use with youth aged 7 to 18 years of age to assess a child's exposure to 26 types of traumatic events and to assess PTSD diagnostic criteria. It includes 19 items to assess the 17 symptoms of PTSD as well as two associated symptoms (guilt and fear of events recurring). Fears of recurrence are often pervasive, shared across dimensions of exposure, and represent children's perception of the seriousness of the danger. Trauma-related guilt for perceived commission or omission of actions has been found to increase overall severity of post traumatic stress reactions within categories of exposure, and can serve as an important indicator for triage. A total PTSD Severity Score can be calculated as well as severity scores for DSM criteria for PTSD in the following areas: PTSD B Re-experiencing; PTSD C Avoidance; and PTSD Increased Arousal. It has three parts as follows:

- Part I consists of a brief trauma screen, allowing for categorization of traumatic exposures, in this case exposure to the Slave Lake wildfire,
- Part II evaluates the DSM-IV criteria that are features of the traumatic exposure. These items are also scored as present or absent. Threshold criteria are available for each symptom that allows determination if a PTSD diagnosis is Not Likely, a Partial Diagnosis is Likely, or a Full Diagnosis is Likely, and
- Part III provides for a thorough evaluation of the frequency of occurrence of post traumatic stress symptoms during the past month (rated from 0 = none of the time to 4 = most of the time).

The SDQ is a widely used 25-item instrument for screening clinical and behavioural problems that includes 5 subscales of difficulty: Emotional Symptoms Scale (ESS), Conduct Problems Scale (CPS), Hyperactivity Scale (HS), Peer Problems Scale (PPS), and Prosocial Scale (PS). The Total Difficulties Score (TDS) is generated by summing the score from all the scales except the Prosocial Scale. Over and above the 25 items described above, the SDQ instrument also includes a 5 item supplement to measure Impact Scores (IMP) or total impact—which attempts to measure how much the difficulties interfere with home life, friendships, classroom learning, and leisure activities. The scoring rubric for the instrument provides recommended cut-off values to code each respondent as falling within the normal, borderline, or abnormal range for each of the subscales as well as the total difficulty score. The SDQ was adopted for children and adolescents between 11-19 years of age and therefore only administered to participants 11 or older.

An online survey hosting site (SurveyMonkey.com) provided a convenient method for participants, who had earlier been assigned a unique identification code by the researchers in collaboration with the schools, to access the survey in the school computer labs. The survey was carried out in the local schools at two points in time: Time One (T1) was in November 2011, just six months after the fires. Time Two (T2) was in May 2012, one year after the fires.

SCHOOL SAMPLES & SURVEY ADMINISTRATION

Participants were students from grades 3 to 12 (typically 8 to 18 years old) who were enrolled in public and private schools in Slave Lake. After obtaining ethical clearance from the University of Lethbridge and with the two school divisions in the area (Living Waters Catholic School Division and High Prairie School Division) and the private school (Koinonia Christian School), we consulted with the school principals to determine the best strategy for administering the survey.

School personnel helped us access the students by informing parents about the project (in school meetings, websites and newsletters). They also assisted with sending home letters with information about the project and participation consent forms. Once parental consent forms and assent forms from the students had been received, we organized participants in groups of 10-15 for completing the survey on dates and times arranged with the different schools. With each school we scheduled one day for administrating the survey at T1 and T2.

For anonymity purposes, participants were assigned a unique identification number that was provided to them the first day of the administration of the survey. On each day the survey was administered, school personnel helped us call the different groups of participants to the computer lab to complete the survey. We aided participants in grades 3 and 4 by reading out loud the survey instructions and questions. We made ourselves available to all groups to answer any questions participants might have in regards to the survey. In case any participant experienced an untoward emotional reaction during or after completing the survey, counsellors and mental health professionals had been pre-arranged and were available for immediate intervention.

WHO WERE THE PARTICIPANTS?

The school survey at time T1 yielded n=160 useable responses and the survey at time T2 yielded n=164 useable responses. A profile of the student attributes is given in Table 1.

Table 1. Characteristics of the Samples at T1 and T2

		T1 Nov. 2011 (n=160)	T2 May 2012 (n=164)
		Percent	Percent
Age	7-8 yrs	17.1	4.3
	9-10 yrs	41.1	45.7
	11-12 yrs	25.3	32.3
	13+ yrs	16.5	17.7
Grade Level	Three	18.8	16.5
	Four	21.9	25.6
	Five	18.1	17.7
	Six	21.3	21.3
	Seven	2.5	2.4
	Eight	4.4	4.3
	Nine	2.5	3.7
	Ten	1.9	1.2
	Eleven	5.6	4.9
	Twelve	3.1	2.4
Gender	Female	54.4	53.7
	Male	45.6	46.3
Home Burned	Yes	20.0	18.9
	No	80.0	81.1

PTSD RESULTS

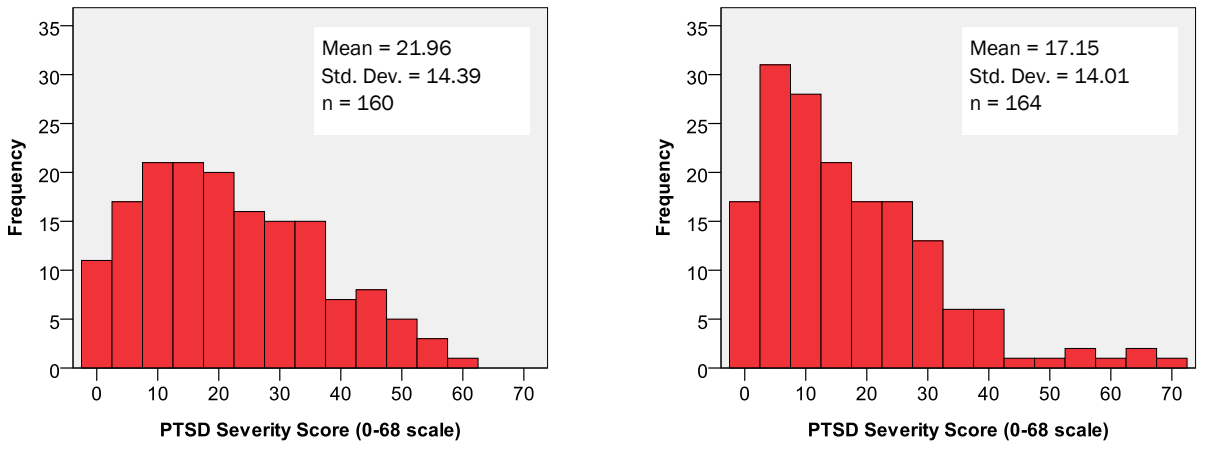
In this section, our results and discussion focus on the three subscales of the UPID: PTSD B (Re- Experiencing); PTSD C (Avoidance); and PTSD D (Increased Arousal) as well as the overall PTSD severity score. A coding framework determines if a respondent exceeds a criteria threshold for each of the above, and also determines if a PTSD diagnosis is Not Likely, a Partial Diagnosis is Likely, or a Full Diagnosis is Likely. The following variables are referenced in the discussion:

PTSDCRITBsevscore. Criterion B Severity Score (Re-Experiencing). 0-20 scale
PTSDCRITCsevscore. Criterion C Severity Score (Avoidance), 0-28 scale
PTSDCRITDsevscore. Criterion D Severity Score (Increased Arousal), 0-20 scale
PTSDSEVSCORE. PTSD Severity Score (composite PTSD measure), scale 0-68
CritBmet. Meet Criterion B (threshold conditions met if at least 1 PTSD B symptom), binary scale (Yes/No)
CritCmet . Meet Criterion C (threshold conditions met if at least 3 PTSD C symptoms), binary scale (Yes/No)
CritDmet. Meet Criterion D (threshold conditions met if at least 2 PTSD D symptoms), binary scale (Yes/No)
PTSD Diag. PTSD Diagnosis Category (Not Likely, Partial Likely, Full Likely)

Table 2. PTSD Criteria Severity Scores at T1 and T2

	T1, n=160				T2, n=164			
PTSD Scales	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD
PTSDCRITBsevscore	.00	20.00	7.88	5.07	.00	20.00	5.43	5.21
PTSDCRITCsevscore	.00	24.00	6.97	6.05	.00	28.00	4.96	5.52
PTSDCRITDsevscore	.00	16.00	6.41	4.13	.00	20.00	6.76	4.75
PTSDSEVSCORE	.00	62.00	21.96	14.39	.00	68.00	17.15	14.09

Figure 1. PTSD Severity Scores at T1 and T2



The data reveal a wide range of values for each of the PTSD criteria scores at both points in time, illustrating that there is substantial variation in the presentation of symptoms among the children (Table 2, Figure 1). However, on average, the scores for most of the different features of PTSD are well below half of the scale range (Table 2). Nevertheless, a substantial share of children meets certain PTSD criteria symptoms. For instance, at time T1 55% of students meet the Re-Experiencing criterion, 15.6% meet the Avoidance criterion, and 35.6% meet the Increased Arousal criterion. By time T2 a decline in the prevalence of meeting these criteria is evident, with 37.2% meeting the Re-Experiencing criterion, 8.5% meeting the Avoidance criterion, and 32.3% meeting the Increased Arousal criterion (Table 3, Figure 2). The survey cannot determine if time alone or some other intervening factor accounts for the decline in PTSD symptoms.

Table 3. PTSD Diagnostic Criteria at T1 and T2

	T1, n=160		T2, n=164	
PTSD Criteria	% Meeting Criteria	Mean Severity Score for those meeting Criteria	% Meeting Criteria	Mean Severity Score for those meeting Criteria
CritBmet (Re-Experiencing)	55.0%	11.38	37.2%	10.74
CritCmet (Avoidance)	15.6%	17.88	8.5%	17.64
CritDmet (Increased Arousal)	35.6%	10.96	32.3%	12.25

Figure 2. Percentage of Students Meeting PTSD Criteria at T1 and T2

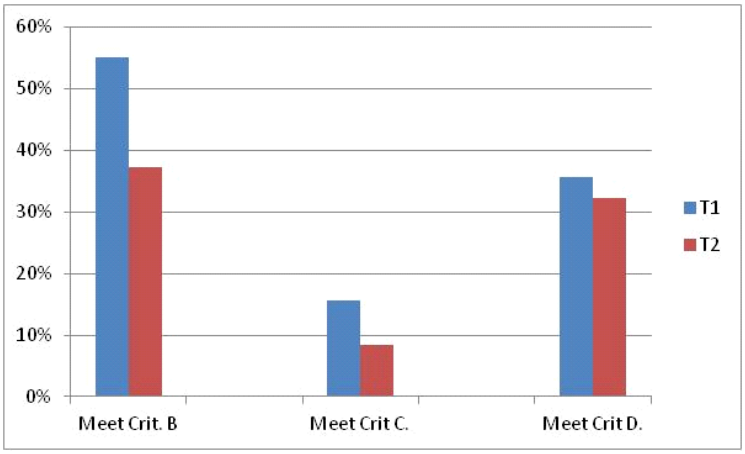
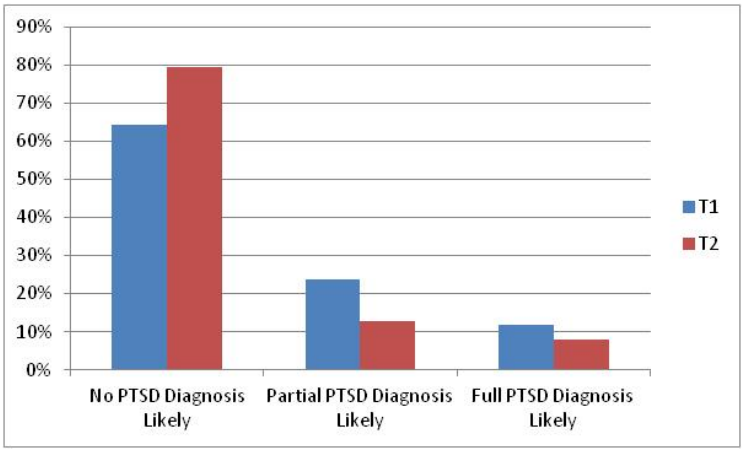


Figure 3. Percentage of Students Classified by Likely PTSD Diagnosis at T1 and T2.



Results from the surveys also illustrate that only a small minority of students is at high levels of risk for PTSD diagnosis (Table 4, Figure 3). The majority presents with symptoms that are not likely to result in any PTSD diagnosis (64.4% and 79.3% respectively for T1 and T2). Full PTSD diagnosis is likely for only 11.9% and 7.9% of students from the survey at T1 and T2 respectively (Table 4, Figure 3).

The survey results show a number of student attributes that seem to be associated with PTSD symptoms or with significant differences in scores in the various features of PTSD. These include gender, age, and burn status (i.e., whether or not their home was burned in the fire). At time T1, the data shows significant ($p<0.05$) differences in the mean Re-Experiencing scores (PTSD criterion B) by gender, with females averaging 8.9 *versus* 6.7 for the males. In addition, there is a significant association between gender and the classification of students according to those that meet or do not meet criterion B (Re-Experiencing) and criterion D (Increased Arousal) thresholds. By time T2 the gender impact seems to have waned somewhat. A significant ($p<0.05$) difference in mean Re-Experiencing scores is still evident (average of 6.4 for females and 4.4 for males), but the significant association between gender and criterion D (Arousal) is no longer evident. In summary, gender seems to be important in differentiating PTSD symptoms (females higher symptoms) at an early stage, but time or some other intervening factor reduces the gender-based differentiation of PTSD symptoms.

The school survey data sets defined four age groups: 7-8, 9-10, 11-12, and 13+. At time T1 significant differences in mean PTSD scores are found for age groups, but the differences are really only manifested between the youngest and the oldest groups. The youngest (7-8 year olds) and the oldest (13+) exhibit significantly different mean scores for Re-Experiencing (9.9 youngest *vs.* 5.5 oldest), for Avoidance (9.3 *vs.* 5.0), and for overall PTSD scores (27.1 *vs.* 15.3), but no age groups exhibit differences in the Arousal (Criterion D) scores. At time T1, age is also significantly associated with PTSD diagnosis category (No, Partial, Full). By time T2, age is no longer as important in differentiating the mean scores, and the only real difference is between the 9-10 year olds and 13+ groups for the Re-Experiencing scores (6.4 vs. 3.2 respectively). By time T2, age is no longer associated with PTSD diagnosis category. In summary, the results suggest that young children are most likely to manifest problematic PTSD symptoms at an early stage following a disaster, but time (or some other intervening factor) erodes the importance of age in differentiating the respondents by PTSD symptoms.

Table 4. PTSD Diagnostic Categories at T1 and T2

	T1, n=160		T2, n=164	
PTSD Diagnosis Category	Percent in Diagnosis Category	Mean Overall PTSD Severity Score for those in Diagnosis Category	Percent in Diagnosis Category	Mean Overall PTSD Severity Score for those in Diagnosis Category
No PTSD Diagnosis Likely	64.4%	13.88	79.3%	11.79
Partial PTSD Diagnosis Likely	23.8%	31.16	12.8%	30.19
Full PTSD Diagnosis Likely	11.9%	47.32	7.9%	49.62

The school survey asked students if their homes had been burned in the fire. One might expect some connection between burn status (burn *vs.* non-burn) and a range of different PTSD symptoms. The results do indicate burn status is a differentiating feature. At time T1, 20% of the students indicated that their homes had burned in the fire. The data revealed significant differences ($p<0.05$) in mean PTSD scores by burn status for the Re-Experiencing scale (Criterion B), the Avoidance scale (Criterion C), and the Arousal scale (Criterion D) in addition to the overall PTSD Severity scores. Students whose homes burned present significantly higher mean scores on every facet of PTSD, including Re-Experiencing (10.0 burn vs. 7.4 non-burn); Avoidance (10.0 burn vs. 6.2 non-burn), Arousal (8.5 burn vs. 5.9 non-burn), and in the overall PTSD severity score (30.3 burn *vs.* 19.9 non-burn). The data also shows a significant positive association ($p < 0.05$) between burn status (house burned) and meeting the threshold values for the Re-Experiencing, Avoidance, and Arousal Criterion. By time T2 a number of changes are evident. 19% of students in T2 claimed their house had burned down. The significant differences in mean severity scores for all of the PTSD features are still evident, and while the association between burn status and meeting the threshold for Re-Experiencing still holds, the significant association between burn status and meeting the threshold for Avoidance and Arousal are no longer evident. As shown above the PTSD instrument also classifies individuals by likely diagnosis. At time T1 the data shows a significant association between burn status and diagnosis category ($X^2=6.22$, $p<0.05$). However, by time T2 this association no longer holds.

SDQ RESULTS

Our school surveys at T1 and T2 measured each child on each of the 5 subscales (ESS, CPS, HS, PPS, PS), the total difficulties (TDS), and the total impact score (IMP). Our results therefore focus on the following variables:

ESS.	Emotional Symptoms Scale, 0-10 scale
CPS.	Conduct Problem Scale, 0-10 scale
HS.	Hyperactivity Scale, 0-10 scale
PPS.	Peer Problem Scale, 0-10 scale
PS.	Prosocial Scale, 0-10 scale
TDS.	Total Difficulties Score, 0-40 scale. (TDS does not include PS)
IMP.	Total Impact Score, 0-10 scale
ESSnom.	ESS score classified (0-5 normal, 6 borderline, 7-10 abnormal)
CPSnom.	CPS score classified (0-3 normal, 4 borderline, 5-10 abnormal)
HSnom.	HS score classified (0-5 normal, 6 borderline, 7-10 abnormal)
PPSnom.	PPS score classified (0-3 normal, 4-5 borderline, 6-10 abnormal)
PSnom.	PS score classified (6-10 normal, 5 borderline, 0-4 abnormal)
TDSnom.	TDS score classified (0-15 normal, 16-19 borderline, 20-40 abnormal)

The data reveal a wide range of values for each of the SDQ scores at both points in time, illustrating that there is substantial variation in the presentation of strengths and difficulties among the children (Table 5, Figure 4).

However, on average, the scores for most of the different detrimental features of SDQ are well below half of the scale range at both points in time (Table 5), while the PS scores are relatively high, which is a positive attribute. Nevertheless, the variation in the scores also shows that some students score very high on many of the negative aspects of SDQ. Table 5 shows that the mean scores on all dimensions of SDQ as well as the TDS and IMP have decreased marginally through time.

Table 5. SDQ Subscales, TDS, and Total Impact Scores at T1 and T2

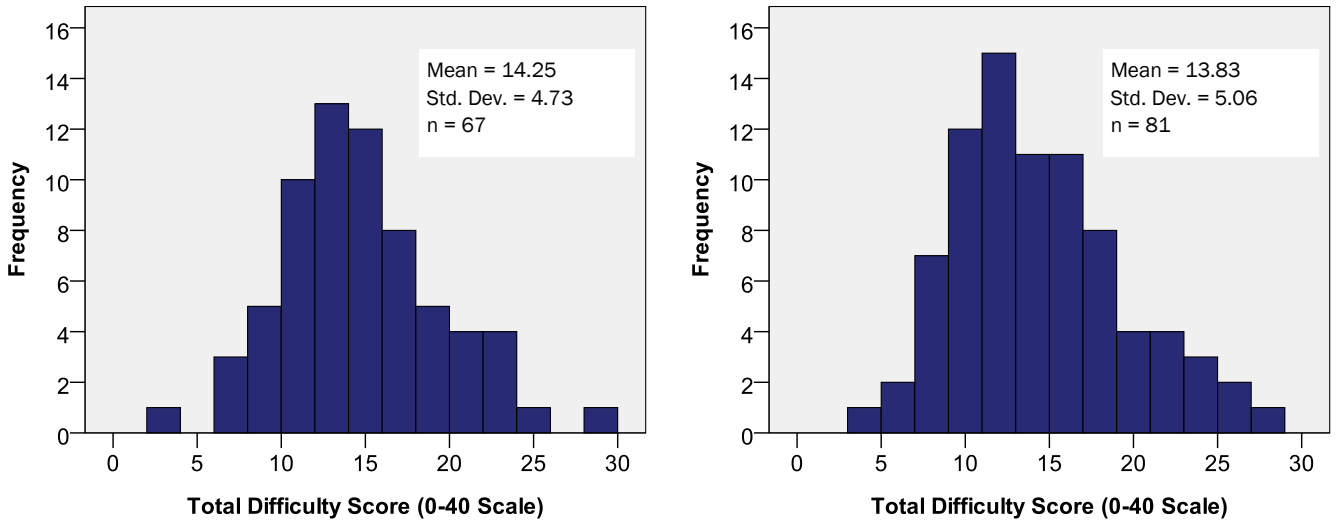
	T1, n=67				T2, n=81		
SDQ Scales	Min.	Max.	Mean	SD	Min.	Max.	Mean
ESS	.00	8.00	2.34	2.14	.00	10.00	2.14
CPS	1.00	7.00	2.52	1.19	.00	6.00	2.46
HS	1.00	9.00	4.87	1.88	.00	9.00	4.81
PPS	1.00	9.00	4.52	1.33	2.00	8.00	4.42
PS	2.00	10.00	7.55	1.84	.00	10.00	7.42
TDS	3.00	29.00	14.25	4.73	4.00	27.00	13.83
IMP	.00	8.00	.59	1.49	.00	7.00	.54

Table 6 and Figure 5 show the SDQ classification as normal, borderline, or abnormal for each of the subscales and the TDS at times T1 and T2. At both time points the majority of students are within the normal range for all aspects of SDQ, with the exception of the PPS, where the vast majority is not in the normal range. At time T1, 63.6% are considered borderline for PPS, while almost one in five students is coded as abnormal on the PPS. At time T2 a similar pattern of problems with PPS is evident, although the percentage in the normal range has increased marginally to 23.5%. Table 5 shows that HS is also a relatively important difficulty, with 19.7% coded abnormal at T1 and 17% of students coded with HS abnormality at time T2. In terms of TDS, approximately 35% of students exhibit either borderline or abnormal levels of difficulties (Table 6, Figure 5).

Table 6. SDQ Scores at T1 and T2

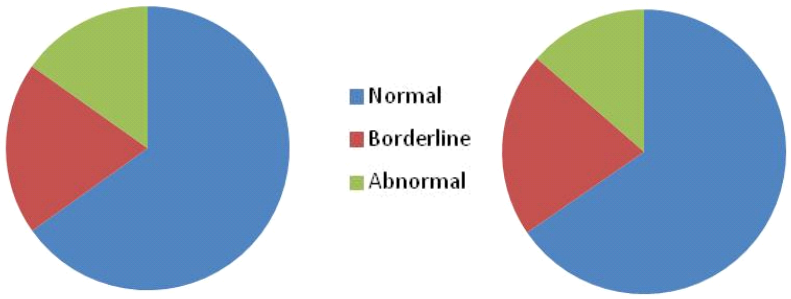
	T1, n=67			T2, n=81		
SDQ Classifications	Normal	Borderline	Abnormal	Normal	Borderline	Abnormal
ESSnom	87.9%	7.6%	4.5%	88.9%	6.2%	4.9%
CPSnom	83.4%	10.6%	6.1%	76.5%	14.8%	8.6%
HSnom	63.6%	16.7%	19.7%	65.4%	17.3%	17.3%
PPSnom	16.7%	63.6%	19.7%	23.5%	58.0%	18.5%
PSnom	87.9%	6.1%	6.1%	79.0%	9.9%	11.1%
TDSnom	65.2%	19.7%	15.2%	65.4%	21.0%	13.6%

Figure 4. Total Difficulties Scores at T1 and T2



As with the PTSD measures, we explored a number of students attributes that may be associated with SDQ symptoms. The results from the survey administered at T1 and T2 show a number of attributes that are associated with significant differences in scores and have significant associations with classifications by normal, borderline, or abnormal. These include gender, age, and burn status (i.e., whether or not their home was burned in the fire).

Figure 5. Total Difficulty Classification of Students at T1 and T2.



Gender does not seem to be a key differentiating characteristic on almost all dimensions of the SDQ. At time T1, independent sample t-tests show that the only gender-based difference is in mean ESS scores, with girls significantly ($p < 0.05$) higher at 2.9 and boys at 1.7. No other subscales of SDQ or TDS or IMP scores were differentiated by gender at time T1. A slight change is evident by time T2, where the gender difference for the ESS scale no longer holds. Also at time T2 the PS scale emerges as differentiated by gender, with girls exhibiting significantly ($p < 0.05$) higher scores on the PS scale (8.1 girls *vs.* 6.6 boys).

The school survey defined two age groups of students completing the SDQ items: aged 11-12 and 13+. The data from the survey at T1 and T2 shows no significant difference in average symptom scores on any of the SDQ dimensions between these two age groups at either point in time. Age, therefore, does not seem to be a key feature differentiating students on the basis of SDQ symptoms.

As with the PTSD outcomes, one might expect some connection between burn status (burn *vs.* non-burn) and a range of different difficulties encountered by children. The data from the survey at T1 and T2 shows that there are important impacts of burn status on many features of SDQ in the early stages after the fire (T1), but that most of this impact has waned by time T2. At time T1 burn status is associated with significant differences in four features of SDQ. For instance, students whose homes burned had significantly ($p<0.05$) higher scores on the CPS (3.5 burn *vs.* 2.9 no burn), the HS (5.8 burn *vs.* 4.7 no burn), the TDS (17.5 burn *vs.* 13.5 no burn), and the IIMP (1.7 burn *vs.* 0.3 no burn). By time T2 all of these significant differences are no longer evident, although the PPS emerges as significantly different by burn status, with scores of 5.0 *vs.* 4.3 respectively for those whose homes had burned *vs.* those whose homes did not.

CHANGES IN PTSD AND SDQ THROUGH TIME

In order to assess overall changes to PTSD through time, the data from the survey at T1 and T2 were combined, matched by student unique identifiers, yielding n=140 matched pairs. This provides measures of the PTSD items for each student at two points in time, and allows us to examine significant changes in time for individuals. Paired sample t-tests were carried out for each of the 3 subscales of PTSD (Re-Experiencing; Avoidance, Increased Arousal) as well as the overall PTSD Severity Score to see if mean scores on these scales have changed in significant ways. Significant ($p<0.05$) declines in averages were evident in all but one measure of the Arousal scale. The Re-Experiencing scores declined from a mean of 7.7 to 5.4, the Avoidance scores declined from an average of 6.6 to 5.0, and the overall PTSD Severity Scores declined from a mean of 21.1 to 17.1. Arousal increased (not significantly) from a mean of 6.2 to 6.7.

Since only those aged 11 to 19 were asked to complete the SQ questions, the joint data from T1 and T2 yielded n=59 matched pairs. The same method was used to assess paired changes in the SDQ characteristics through time. This analysis revealed no significant changes in means for any of the SDQ subscales nor the Total Difficulties scale (TDS) and the Impact scale (IMP).

A PROFILE OF CHILDREN MOST AT RISK

Both data sets T1 and T2 were examined to explore the characteristics of students who are most at risk for emotional or behavioral trauma resulting from the disaster. In this regard we focus only on those students where the data indicates a Full PTSD Diagnosis is likely, and those whose overall TDS were classified as being within the abnormal range of scores. Table 7 presents some of the characteristics of these students.

In terms of PTSD risk, we find the patterns are fairly consistent at both points in time. The vast majority are young (aged 7 to 10), and in lower grade levels (grades 3 to 6). Interestingly, however, the majority of those most at risk of PTSD did not experience the loss of their homes in the fire. The gender profile of PTSD risk is less consistent, and although the majority is females at both points in time, the majority is larger at time T2.

In terms of SDQ risk, the profiles are also relatively consistent at both points in time. SDQ items were only administered to those aged 11+, but the data also shows that the majority of students are younger (grade 3 to 6), and in the 11 to 12 year old range. As with the PTSD findings, we see that the majority of those with severe SDQ scores did not experience the loss of their homes in the fire. The gender profile of SDQ problems changes through time. At time T1, 70% of those with abnormal SDQ scores are females, but by time T2 this has declined to 46%, and males exhibit the majority of abnormal scores (54%).

Table 7. Profile of Students with PTSD Full Diagnosis Likely *or* Abnormal SDQ Classification

		PTSD Full Diagnosis Likely		SDQ Abnormal Classification	
		T1, n=19	T2, n=13	T1, n=10	T2, n=11
School Level	Grade 3-6	95%	92%	60%	82%
	Grade 7-12	5%	8%	40%	18%
Age Group	7-8 yrs	39%	15%	n/a	n/a
	9-10 yrs	33%	54%	n/a	n/a
	11-12 yrs	22%	23%	60%	73%
	13+	6%	8%	40%	27%
Gender	Male	42%	23%	30%	54%
	Female	58%	77%	70%	46%
House Burned	Yes	37%	23%	20%	36%
	No	63%	77%	80%	64%

Finally, we used the pooled (joint) data set of paired samples to examine the traits of individual students who exhibit these severe symptoms at both points in time, meaning that their difficulties are enduring symptoms and are evident 6 months after the fire and also 12 months after the fire. Although 19 students at T1 and 13 students at T2 were coded with a Full PTSD diagnosis likely (11.9% and 7.9% respectively), the paired data revealed that only 5 students (3.6%) manifest this diagnosis at both points in time, meaning that some students exhibited severe PTSD symptoms early on and these symptoms have waned through time, others did not exhibit severe symptoms until well after the time of the disaster, while others seem to exhibit enduring symptoms. Of those five exhibiting enduring symptoms (i.e., Full PTSD Diagnosis Likely at both points in time), all were elementary school children between the ages of 8 and 11 years, four were girls, and only two of the five lost their homes in the fire. Their average overall PTSD Severity Score decreased from 50.6 to 44.2, their mean Re-Experiencing scores decreased from 15.6 to 13.8, their mean Avoidance scores decreased from 19.2 to 15.2, and their Arousal scores increased marginally from 12.8 to 15.2.

Of the n=59 students in the paired data set (over T1 and T2), only 4 were coded with abnormal TDS scores at both points in time. The profile of these students is a little more mixed than that of the PTSD results: 50% were males and 50% females; 50% were in grade 3 to 6 while 50% were in grades 7 to 12; 50% lost their homes in the fire while 50% did not; and 50% were aged 11-12 and 50% aged 13+.

References

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38*, 581-6.
Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire (SDQ): *J Am Acad Child Adolescence Psychiatry*, 40, 1337-45.
Pynoos, R., Rodriguez, N., Steinberg, A., Stuber, M., & Frederick, C. (1998). UCLA PTSD Index for DSM-IV.
Steinberg, A., Brymer, M., Decker, K., Pynoos, RS. (2004). The UCLA PTSD Reaction Index. *Current Psychiatry Reports* 6:96-100.

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