Field Test and Reliability Analyses of Trauma and Post-Trauma Well-Being Domains of the *North Carolina Family Assessment Scale for General and Reunification Services*

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Introduction

Recently there has been a burgeoning interest among child welfare professionals and practitioners on the impact of histories of trauma on families and children in the child welfare system. This interest is fueled largely by recent research findings, such as those from the ACES study conducted over many years by the Centers for Disease Control, that childhood trauma has the potential to precipitate lifelong problems. These concerns compel child welfare professionals and practitioners to adapt their practice models accordingly.

Traditional child well-being has focused primarily on safety and permanence. However, trauma is now known to affect psycho-social, emotional, cognitive and even physical development. The research is clear that trauma affects well-being in increasingly predictable ways. However, few practitioners outside of mental health have been trained to assess children and families for histories of trauma or recurring trauma to understand the impact of those histories on family functioning and well-being. To assist the broader community of practitioners to assess for trauma in children and families, and for identifying improvements in child and family well-being after services that have focused on trauma, the National Family Preservation Network (hereinafter NFPN) has undertaken the task of adding 2 new domains to the North Carolina Family Assessment Scales for General and Reunification Services (hereinafter NCFAS-G+R). The 2 new domains are titled Trauma, and Post-Trauma Well-Being. These 2 new domains are intended to provide a framework for identifying symptomology (symptoms, conditions, and behaviors) associated with histories of trauma and relate them to indicators of well-being in children and families following services.

The NCFAS-G+R is widely used in child welfare and child protection as well as many other child and family-serving systems. It provides a framework for social workers to assess families on 10 domains of family functioning (e.g., parental capabilities, family interactions, child well-being, and 7 others) at intake and at the end of service. The 2 new domains complement the existing NCFAS-G+R.

All children in the child welfare system, and particularly those involved with child protection services, are at risk of trauma and many experience physical trauma, increased stress, and sometimes debilitating traumatic stress. Traumatic stress is characterized as different from normal stress in that the traumatic events were neither expected nor preventable (by the victim) and the victim was unprepared for them or their aftermath. Even some well-intentioned features of the child welfare system (e.g., emergency child removal and placement) can be traumatic.

Children's reactions to trauma, and the symptoms of trauma, vary at least to some degree with the age of the child. The following are symptoms of trauma as described by Pinna and Gerwitz (2013), and their description of trauma symptomology served as the foundation for conducting the scale items on the trauma domain:

- Infants may bond weakly or fail to bond with parent/caregiver; exhibit excessive crying; become non-responsive to stimulation or attempts to comfort; develop poor or disrupted sleep patterns.
- Pre-school age children may exhibit hyperactivity/arousal; suffer developmental delays; exhibit onset of apparent disabilities (cognitive/emotional/psychological); experience nightmares; display difficulties in emotional regulation (tantrums, aggression); exhibit developmental regression (behavioral, bowel and bladder functioning).

- School-age children may exhibit hyperactivity, depression/anxiety; exhibit developmental delays and disabilities; experience nightmares; suffer altered sleep/wake patterns; exhibit school problems, social problems; display behavioral problems (impulse control).
- Adolescents may exhibit school problems (academic and behavioral), disability; become depressed or excessively anxious; engage in premature and/or risky sexual activity (pregnancy, STDs); engage in substance use/abuse; engage in criminal activities; display suicidal behaviors; engage in self-injurious behaviors (cutting, tattooing, piercing); become aggressive or violent, may become sexually aggressive.

If symptoms are evident then it is incumbent upon the practice community to assess the child and family for histories of trauma or recurrent trauma. The new domains added to the NCFAS-G+R are intended to assist practitioners with these assessments. It should be noted, however, that these new domains are not diagnostic. Assessments should seek to detect trauma-related symptoms, and social workers conducting the assessments should have training in trauma-informed practice in order to confidently rate the severity of symptoms. In the present study all workers had received at least basic training on trauma informed practice, and some had specialized in serving trauma victims.

Service plans should strive to enhance protective factors, enhance families' abilities to recover following trauma, and to improve child and family functioning and well-being. The Trauma and Post-Trauma Well-Being domains added to the NCFAS-G+R provide an assessment framework by drawing the practitioner's attention to some indicators frequently associated with a history of experiencing traumatic events, and some countervailing indicators of well-being following services intended to remediate the effects of trauma and traumatic stress.

The Trauma domain comprises the following scale items:

- Traumatic Sexual Abuse of Children
- Traumatic Physical Abuse of Children
- Traumatic Neglect of Children
- Traumatic Emotional/Psychological Abuse of Children
- Parent/Caregiver Trauma
- Overall Trauma

The Post-Trauma Well-Being domain is distinguished from the Child Well-Being domain of the NCFAS-G+R in that it focuses specifically on recovery and healing of children after trauma has occurred, the status of the parent/caregiver following trauma experienced by the caregiver and/or the child, and on the caregiver's ability to support the child during the recovery/healing period. The scale items of the Post-Trauma Well-Being domain are closely aligned with the Children's Bureau's domains of well-being (available at https://training.cfsrportal.org/section-4-trauma-child-welfare-system/2453) which are based on the work of Lou, Anthony, Stone, Vu, & Austin (2008).

The Post-Trauma Well-Being domain comprises the following scale items:

- Post-Traumatic Cognitive/Physical Well-Being of Children
- Post-Traumatic Emotional/Psychological Well-Being of Children
- Post-Traumatic Social Functioning of Children

- Post-Trauma Parent/Caregiver Support of Children
- Post-Trauma Parent/Caregiver Well-Being
- Overall Post-Trauma Well-Being

This report presents the findings of a field test of these new domains that focused on the utility of the use of the domains in child welfare practice settings, the reliability of the scale items in the overarching domains, and convergent validity between the scale items on the Trauma and Post-Trauma Well-Being Domain and other domains on the NCFAS-G+R that a) might logically be expected to be affected at intake by histories of trauma and symptomology of trauma, and b) might logically be expected to be affected at closure following services provided to remediate trauma symptomology.

Field Test Protocol

Three states (Iowa, North Carolina, and Mississippi) with long-standing and high-fidelity family preservation services programs volunteered to participate in the field study. All sites were experienced using the NCFAS assessment scale, and 2 of the 3 states (Iowa and North Carolina) received additional training, especially with regard to the Trauma and Post-Trauma Well-Being domains. All sites were provided technical assistance by the National Family Preservation Network (NFPN) during the course of the study when any questions arose or problems were encountered.

Each site appointed a field test coordinator to oversee data collection, ensure accuracy of the data and to remove all family identification information so as to assure confidentiality in accordance with procedures tailored to each state's requirements. Each field test coordinator was provided with an Excel data entry program, the Trauma Template, and all data were entered into this template to facilitate transfer of the study data to NFPN where all data were merged, anonymity assured, and thence provided to the data analyst.

The field study occurred over 6 consecutive months in the spring and summer of 2014. Sites were instructed to begin immediately with incoming referrals to their family preservation services programs to use the NCFAS-G+R as they normally would, and to also use the Trauma and Post-Trauma Well-Being Domains. Due to the nature of the field test and the need to test reliability, special instructions were given to apply the trauma domain to all families, not just those for whom a history of trauma might otherwise have been expected. This is necessary to assure that the trauma domain was capable of assessing for both inclusion and exclusion of traumatic histories and recurring trauma.

It should be noted that unlike all other domains on the NCFAS-G+R, the Trauma and Post-Trauma Well-Being domains are not linearly related. The Trauma domain are used to assess both trauma and trauma symptomology, but trauma itself cannot be changed while trauma symptomology can be ameliorated. Thus, computation of pre-/post service different scores is not possible. Rather, the types of trauma comprising the Trauma Domain manifest in different ways, according to the psychological and mental health literature, and the Post-Trauma Well-Being Domain is designed to assess level of functioning of the family and children with respect to symptomology at the end of services. Specifically, post-trauma well-being is assessed with respect to cognitive/physical well-being, emotional/psychological well-being, social functioning of children, parent/caregiver support of children, and parent/caregiver well-being. For these

reasons, the Trauma Domain is used only at intake, and the Post-Trauma Well-Being Domain is used only at closure.

Because the construction of these new domains is a slight departure from the construction of the other domains comprising the NCFAS-G+R, special instructions on the use of these domains were provided to the participating sites. These instructions specified using the Trauma domain for all families at intake, but only using the Post-Trauma Well-Being domain at closure on families in which at least one scale item on the Trauma Domain was below baseline at intake. The logic is that if there was no history of trauma or trauma symptomology detected at intake, there would be no reason to assess for post-trauma well-being.

Following the data collection stage, data were transferred electronically to NFPN. A total of 170 families and 352 children are included in the analyses that follow. It should be noted that the sample sizes change from one analysis to another for a variety of reasons. Although we have intake data on all families, not all cases had completed services and closed by the end of the data collection stage. Therefore there are no closure ratings on the NCFAS-G+R for those families, nor are there ratings on the Post-Trauma Well-Being Domain for those families even if in some cases those families had one or more areas below baseline on the Trauma Domain at intake. Also, some analyses are based on a number of families and in others they are based on a number of children, so the unit of analysis sometimes varies.

Demographics of Participating Families and Children

The 3 sites provide a wide variety of families and children with respect to demographics. Mississippi contributed 62% of all families, Iowa contributed 25%, and North Carolina contributed 13%. The parents/primary caregivers range in ages from 17 to 65, with 9% being 20 years of age or less, 40% being between 21 and 30 years of age, 35% being between 31 and 40 years of age, and the remaining 16% being over 40. The preponderance of primary caregivers were female (89%). The majority of primary caregivers was white (66%), and 29% were African-American. The remaining 5% represented all other racial and combinations of racial identities. Only 2% identified themselves as Hispanic.

There were 352 children in the study. The age distribution of children in the study is reasonably even among categories generally associated with different types of risks and maltreatment: infants and toddlers (ages 0 through 2) comprise 24%; preschoolers (ages 3 through 6) comprise 28%; school-age through preadolescents (ages 7 through 12) comprise 29%; and adolescents (ages 13 through 18) comprise 19%. The gender of children was evenly split at 50% males and 50% females. With respect to racial identity, 54% of children were identified as white, 32% as African-American, and 15% as “other.” The sample of children was 6% Hispanic.

The relationship of children to the primary caregiver is as follows: 90% were biological children, 3% were adoptive children, 6% were grandchildren, and 1% were “other.” At the time of intake, 79% of children were living with either the birth or adoptive parent, 10% were living with a relative or in a guardianship setting, 10% were in foster care, and 1% were “other.” At the time of closure, 82% were living with the birth or adoptive parent (a slight increase over case opening), 5% were living with a relative or guardian (a decrease of 5% overall), 12% were in foster care (a very slight increase over the case opening rate), and 1% were living “elsewhere.”

Because the study focuses on the presence or absence of trauma symptomology, and success of the treatment and service efforts, it is important to determine whether there are pre-service trends in demographic variables that could interfere with interpretation of subsequent findings. Several cross tabulations were conducted of demographics to see if these relationships might exist.

The first was child age and type of maltreatment. Recall that children's ages were aggregated according to the following schema: infants and toddlers-24%, preschool age-28%, school-age to preadolescents-29%, and adolescents-19%. Setting alpha at $p < .05$ to determine statistical significance, when these maltreatment categories were cross tabulated with child age, no significant relationships were observed. These data are presented in Table 1, below.

Table 1. Summary of child age category cross tabulations with type of maltreatment.

Type of Maltreatment	Chi-Square Value	Degrees of Freedom	P Value
No child maltreatment	1.56	3	.67
Physical abuse	0.99	3	.81
Sexual abuse	4.58	3	.21
Neglect	1.68	3	.64
Family conflict	6.28	3	.10
Adoption disruption	1.02	3	.80
Other	0.30	3	.96

There were slight trends for sexual abuse to be associated with adolescents, but there were too few of these cases to achieve statistical significance. There is also a bimodal trend for family conflict to be associated with the youngest and oldest age categories (infants/toddlers and adolescents). However, the trends were not significant.

Similarly, child age was cross tabulated with the child's living arrangement at both intake and closure. The 4 age groups were cross tabulated with 3 types of living arrangement at intake: biological/adoptive parent, relative/guardianship, and foster care. At closure, a 4th type of living arrangement was included, that category being "other." With alpha set at $p < .05$, in no cases were there any significant relationships between child age and living arrangement. At intake, chi-square = 4.33, df = 6, p = .63; and at closure chi-square = 7.79, df = 9, p = .56.

Child age was also cross tabulated with type of service provider. Five categories of service provider were used: none, mental health services, agency social worker (general), agency social worker (specialized in trauma treatment) and "other." Only 8% of children received no services, 10% receive services from mental health, 51% from a general services social worker, 28% from a specialized social worker, and 2% from other sources. While there appear to be large differences in the proportions of all children served by these different providers, there were no significant relationships associated with service provision as a function of age (chi-square = 11.63,df = 12, p = .84).

Finally, the type of child maltreatment (none, physical abuse, sexual abuse, neglect, family conflict, adoption disruption, other) was cross tabulated with trauma service provision (none, mental health services, agency social worker/general, agency social worker/specialized, other). The service provision categories were selected to see if one or more categories of reported

maltreatment seem to be referred selectively to different types of trauma service providers, independent of any other considerations, and subsequently to see if service provision by the same categories of service providers are associated with service outcomes following trauma assessment and service provision. Thus, in these first analyses we are looking at the type of maltreatment reported at intake, in distinction to any differences in referral to different sources of trauma service that might be based on trauma symptomology discovered during the process of screening for trauma, specifically.

It is evident from Table 2, below, that there are no systematic differences with respect to referral for trauma services based solely on the type of maltreatment reported at the beginning of the case. There was a slight trend for families experiencing family conflict to be served by the "general services worker" assigned to the family, but there was sufficient distribution of families experiencing family conflict across other trauma service categories that the apparent trend was not statistically significant.

Table 2. Summary of type of trauma service provision cross tabulations with type of maltreatment reported at intake.

Type of Maltreatment	Chi-Square Value	Degrees of Freedom	P Value
No child maltreatment	2.90	4	.58
Physical abuse	1.87	4	.78
Sexual abuse	2.87	4	.58
Neglect	4.13	4	.40
Family conflict	7.66	4	.11
Adoption disruption	2.16	4	.71
Other	4.80	4	.31

Taken as a whole, the series of analyses suggest that there were no systematic differences in types of maltreatment, living arrangement, or types of trauma services provided as a function of child age, and that there were no systematic differences in the type of trauma services provided as a function of the type of child maltreatment reported at intake.

Child Maltreatment and Other Child Welfare Concerns

With regard to types of maltreatment, by far neglect accounted for the largest proportion of maltreatment at 75%; 23% had experienced physical abuse and 6% had experienced sexual abuse. About half (51%) of children were reported as having experienced family conflict or violence. Adoption disruption affected 5% of children.

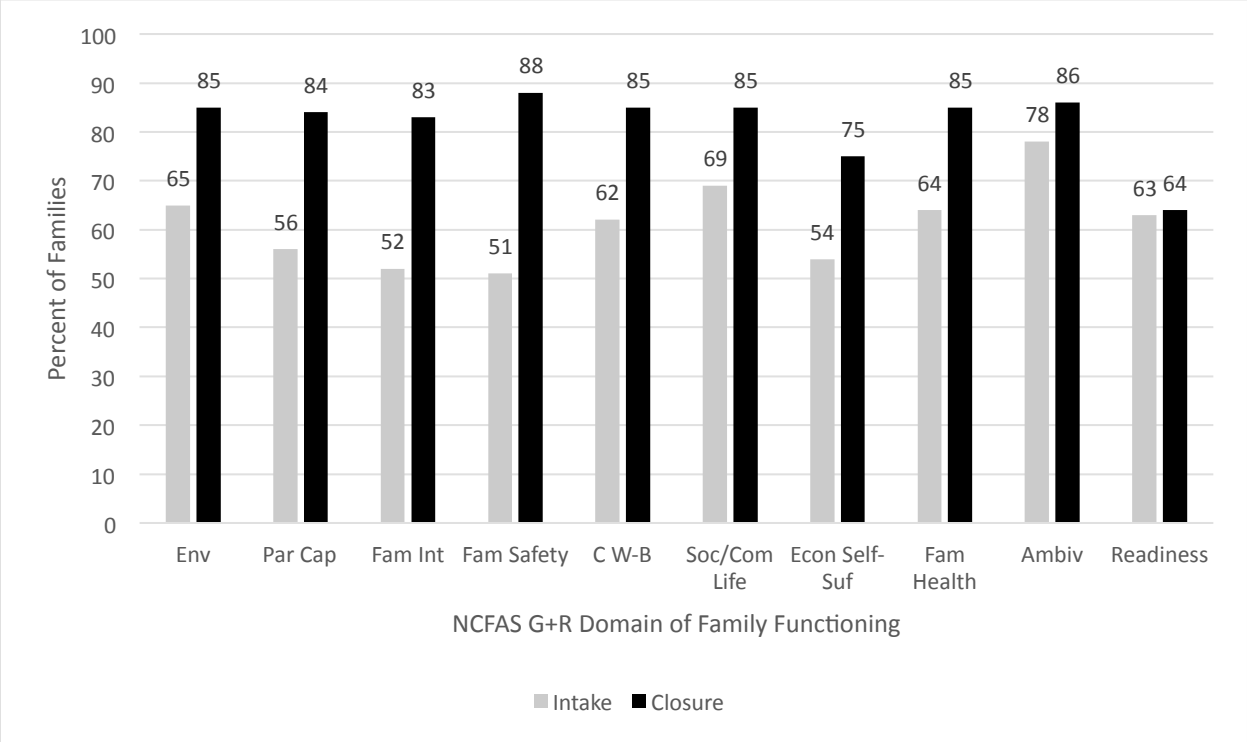
In addition to maltreatment victimization, about a quarter of all children (26%) exhibited behavioral problems. About 16% were beyond the control of their parents, 6% were delinquent, 7% truant, and 14% were failing at school. About 10% were noted as having developmental disabilities, and 23% were exhibiting mental health problems or concerns. About 7% were struggling with alcohol or other substance abuse issues.

Family Functioning on the NCFAS-G+R

When applying the NCFAS-G+R in practice, the definition of baseline/adequate is the level of family functioning above which no mandated public agency response is necessary, although the family may well benefit from receipt of voluntary services. Being rated below baseline, that is, in the problem range, on any domain is indicative of a family in need of services, although the services may not be mandatory in all cases (depending on the type of problem or problems, severity of the problem, the number of co-occurring problems, etc.). Figure 1, below, presents the aggregate portions of families rated as being at or above baseline on each of the 10 original domains of the NCFAS-G+R at both intake and closure.

On a number of domains nearly half of all families are rated as being in the problem range of functioning. In only one case (Ambivalence) is more than three quarters of families at or above baseline at intake. At closure, however, in most cases three quarters or more of all families are rated as being above baseline, many in the strengths range of the scale. The visual impact of these population changes is compellingly reflected in Figure 1, and they are quite typical of changes observed in similar populations of child welfare service recipients being served by family preservation service programs.

Figure 1. Proportion of families rated as being at or above baseline/adequate at intake and closure on 10 domains of the NCFAS-G+R (N = 137).



NCFAS-G+R has been demonstrated to be reliable in a variety of child welfare settings and practice models serving a variety of families. However, in any study reliability should be reassessed with respect to the specific practice setting, the specific workers and specific families

being served. Table 3, below, presents the findings of the reliability analysis of the NCFAS-G+R data in the study.

Table 3. Reliability of the NCFAS-G+R at intake and closure (N = 170)

Intake Ratings on NCFAS-G+R Domains

Domain label	Cronbach's Alpha	Average of All Scale Items*	Overall Domain Rating	
Environment	.895	2.95	3.24	
Parental Capabilities	.861	3.13	3.42	
Family Interactions	.889	3.22	3.48	
Family Safety	.868	3.00	3.43	
Child Well-Being	.903	3.19	3.38	
Social/Community Life	.908	3.07	3.17	
Economic Self-Sufficiency	.921	3.26	3.43	
Family Health	.863	2.91	3.22	
Ambivalence	.870	2.99	3.14	
Readiness for Reunification	.924	3.37	3.42	

Closure Ratings on NCFAS-G+R Domains

Domain Label	Cronbach's Alpha	Average of All Scale Items*	Overall Domain Rating	Difference between Intake and Closure**
Environment	.925	2.30	2.49	0.75
Parental Capabilities	.920	2.39	2.61	0.81
Family Interactions	.937	2.46	2.50	0.98
Family Safety	.922	2.16	2.31	1.12
Child Well-Being	.910	2.38	2.47	0.91
Social/Community Life	.910	2.53	2.63	0.54
Economic Self-Sufficiency	.900	2.70	2.79	0.64
Family Health	.918	2.24	2.32	0.90
Ambivalence	.875	2.31	2.25	0.89
Readiness for Reunification	.957	2.90	2.96	0.46

*Arithmetic average of ordinal scale points where: 1 = Clear Strength, 2 = Mild Strength, 3 = Baseline/Adequate, 4 = Mild Problem, 5 = Moderate Problem, 6 = Serious Problem.

**Positive numbers indicate improvements in family functioning on the domain

In Table 3, the reliability statistics (Cronbach's Alpha) are in the leftmost data column. The center column presents the average of all scale items comprising the domain, and the rightmost column (in the upper half of the table) presents the average overall domain rating assigned to the family by the workers conducting the assessments. In the lower half of Table 3, a fourth column

has been added presenting the difference in scores achieved between intake and closure on the overall domain ratings assigned by the workers.

The Cronbach's alphas derived from analysis of the intake data range from .870 to .924. These are very high alphas and reflect very good internal consistency and reliability in the application of the scale items in relation to the overarching domain ratings. Cronbach alphas above .7 are considered appropriate for clinical practice. Thus, the NCFAS-G+R demonstrated good reliability in this practice setting and data can be viewed with confidence.

The averages of scale ratings range from 2.95 (Environment) to 3.37 (Readiness for Reunification) where a rating of 3.0 is defined as baseline/adequate, and with higher scores suggesting problems of varying degrees of severity. It should be noted that the overall domain rating is slightly higher (i.e., slightly more problematic) than the average of the scale items. For example, the average of all scale items for the Environment Domain at intake is 2.95, whereas the overall domain rating is 3.24. This is another indication of appropriate use of the instrument, according to its theoretical underpinnings, by experienced workers using the instrument. Specifically, workers are instructed not to assign the overall domain rating based on the arithmetic average of the scale items, but rather to assign the overall domain rating based on their clinical judgment about the importance of various scale items within each domain, where one or more items may take on special significance or present special risks and therefore exacerbate the problem.

The Cronbach's alphas relating to the NCFAS-G+R closure domains, presented in the bottom half of the table, range from .875 to .957, and also reflect excellent reliability. The average of all scale ratings within each domain ranges from 2.16 to 2.90, those averages all being above the baseline/adequate level of functioning. Once again, we see that the overall domain ratings are not identical to the average of all scale items comprising the domain, suggesting that social workers conducting the assessments continue to exercise clinical judgment based on individual scale elements within each domain. However, the overall domain ratings are also all above baseline/adequate with respect to the level of family functioning, ranging from 2.31 to 2.96. Figure 1, previously presented, illustrated the proportions of families at or above baseline on each of the NCFAS-G+R domains at intake and closure. The data in the reliability table (Table 3) reflect the same finding. The rightmost column in the bottom half of Table 3 indicates that between .46 and 1.12 "scale increments of progress" were achieved among these families, relative to the 6-point scale employed by the NCFAS-G+R.

Overall, the findings presented above suggest that the NCFAS-G+R was being used reliably by workers in the practice settings providing information for the study. No significant a-priori trends relating to placement types, service provision or maltreatment types were noted, and the differences in family functioning as reflected by the NCFAS-G+R following treatment are typical of improvements noted in prior studies.

In-Depth Analysis of Trauma and Post-Trauma Well-Being Scales and Domains

The main purpose of the study is to examine the new Trauma and Post-Trauma Well-Being Domains in practice, and in relation to the entire NCFAS-G+R assessment process. Recall that the assessment protocol for the NCFAS Trauma and Post-Trauma Well-Being domains stated that the post-trauma well-being assessment was to be conducted only if the trauma screen

conducted at intake resulted in at least one trauma scale being rated in the problem area, i.e., below baseline/adequate. Among the 170 families in the study, 81% met the criterion for assessment of post-trauma well-being. That is, 81% had at least one trauma scale item rated in the problem range. Thus, about 1/5 of all families were "excluded" from consideration of trauma services based on this information whereas 4/5 of all families had at least one scale item in the problem range that might warrant special consideration for assignment to services focusing on symptomology of trauma.

Table 4, below, presents the mean ratings for each of the items in the trauma domain. The mean ratings range from 2.52 (sexual abuse) to 3.99 (trauma history of parent/caregiver). The standard deviations range from 1.22 to 1.38, indicating fairly good dispersion of ratings across the 6 point scale ranging from clear strength (rating = 1) to serious problem (rating = 6). Consistent with the instruction to assign the overall domain score independently of the arithmetic average of the item ratings, the overall domain rating is 3.7, higher than all other mean ratings except parent/caregiver history of trauma. Thus, individual scale items, if found to be in the problem range, are likely to influence social workers to increase the severity of the overall trauma rating, and thereafter seek trauma services for the family/caregiver/child.

Table 4. Trauma domain scale item mean ratings and standard deviations

Trauma Domain Item	**Mean Item Rating***	**Standard Deviation**
Traumatic Sexual Abuse	2.52	1.27
Traumatic Physical Abuse	2.78	1.38
Traumatic Neglect	3.44	1.35
Traumatic Emotional/Psychological Abuse	3.55	1.25
Traumatic History of Parent/Caregiver	3.99	1.29
Overall Trauma	3.70	1.22

*Arithmetic average of ordinal scale points where: 1 = Clear Strength, 2 = Mild Strength, 3 = Baseline/Adequate, 4 = Mild Problem, 5 = Moderate Problem, 6 = Serious Problem.

A closer examination of workers' assessments of trauma history and symptomology reveals that 13% were rated as having a problem with respect to traumatic sexual abuse of children, 6% being rated in the moderate to serious problem range. With respect to physical abuse, 20% of families were rated in the problem range, with 11% being rated in the moderate to serious problem range. Traumatic neglect was a common type of trauma observed among children in these families, with 44% being rated in the problem area and 21% being rated in the moderate to serious problem range. However, even more families were noted as having traumatic emotional or psychological abuse histories, with 48% rated in the problem area, and 21% (more than $1/5^{th}$) rated at the moderate to serious problem level. Among all types of trauma, however, parent/caregiver trauma was the most frequent with 57% of families being rated in the problem area, and 37% (nearly 2/5) being rated at the moderate to serious problem level. Considering all of these ratings on an individual family basis, workers assigned ratings in the problem range on the overall trauma domain to 55% of families, with 28% of families being rated as having experienced moderate or serious trauma and exhibiting trauma symptomology at the time of intake. Thus, more than half of all families exhibited symptomology indicating the possible need for services focusing on trauma, and more than a quarter (28%) of the families in the study exhibited moderate to serious trauma symptomology.

Reliability analyses of the Trauma Domain data (N = 170) produced a Cronbach's Alpha of .811, a statistic indicative of very good internal consistency and reliability of use by the social workers in the study, interacting with the families in the study.

A similar analytic approach can be applied to the Post-Trauma Well-Being Domain. Recall that one fifth of all families (19%) did not have any trauma item rated below baseline at intake. Furthermore, there were a few families who had problem ratings on the Trauma Domain at intake but whose cases had not closed by the end of the data collection phase of the study. Therefore, the sample size for examining Post-Trauma Well-Being Domain data is 113. Table 5, below, presents the mean item ratings and standard deviations for the scale items comprising the Post-Trauma Well-Being Domain. Reliability analyses of the Post-Trauma Well-Being Domain data (N = 113) produced a Cronbach's Alpha of .905, a statistic indicative of very good internal consistency and reliability.

The mean ratings for the scale items range from 2.24 to 2.88, placing the population of families comprising the sample between baseline/adequate and mild strength on all scale items and the overall domain rating. The standard deviations, which range from 1.08 to 1.32 suggest that there are still a number of families who are rated in the problem range at the time of closure, and some families will have been rated much higher than baseline, falling in the mild strength to clear strength range.

Table 5. Post-Trauma Well-Being Domain scale item mean ratings and standard deviations

Post-Trauma Well-Being Domain Item	Mean Item Rating*	Standard Deviation
Cognitive and Physical Well-Being	2.24	1.11
Emotional and Psychological Well-Being	2.50	1.11
Social Functioning	2.42	1.08
Parent/Caregiver Support of Child	2.39	1.25
Parent Caregiver Well-Being	2.88	1.32
Overall Post-Trauma Well-Being	2.81	1.21

*Arithmetic average of ordinal scale points where: 1 = Clear Strength, 2 = Mild Strength, 3 = Baseline/Adequate, 4 = Mild Problem, 5 = Moderate Problem, 6 = Serious Problem.

A closer examination of the 113 families for whom we have case closure information suggests that substantial progress was made as a result of services provided in relation to the trauma histories and symptomology and other assessment information available at intake or shortly thereafter (e.g., the NCFAS-G+R assessment ratings). Recalling that 13% of families were below baseline with respect to traumatic sexual abuse, 19% below baseline for traumatic physical abuse, and 44% below baseline for traumatic neglect, it is noteworthy that only 10% of families were rated in the problem range on post trauma cognitive/physical well-being, and none of these families was rated at the serious problem level. Recalling that 48% of families were rated in the problem level for emotional/psychological abuse, it is noteworthy that only 12% of families were rated in the problem range on post-trauma emotional/psychological well-being, with only 4% rated at the moderate or serious problem levels.

All types of trauma can affect social functioning in children, and after services only 14% of families were rated in the problem range on post-trauma social functioning, with none of those families being rated at the serious level. Histories of parent/caregiver trauma can affect parenting

abilities in a variety of ways from basic support and nurturing to serious abusive and neglectful parenting styles. Recalling that nearly 3/5 (57%) of families were rated in the problem range of histories of parental/caregiver trauma (and 37% were rated at the moderate or serious problem levels) it is noteworthy that on the post-trauma, parent/caregiver well-being assessment, 25% were rated in the problem range but only 12% at the moderate or serious problem levels. On the overall post-trauma well-being domain, 25% of families were rated in the problem range but only 9% at the moderate or serious problem level. These data suggest that trauma symptomology identified during the trauma screen at intake can be reduced substantially in most cases if appropriate services are provided.

Analyses in this section suggest that the two domains under investigation, Trauma and Post-Trauma Well-Being, behave in a manner similar to other domains on the NCFAS-G+R. Cronbach's alphas for both domains are very respectable at .811 for Trauma, and .905 for Post-Trauma Well-Being. The Trauma domain results suggest that the overall domain is capable of both including and excluding families on the basis of trauma history and symptomology, and the Post-Trauma Well-Being Domain results suggest that trauma symptomology can be reduced with appropriate services.

The findings from the field study on these 2 domains is encouraging. However, in order to increase confidence that the information on the new domains is being used by social workers to influence practice decisions, it is necessary to examine the data from these domains in relation to case practice decisions and outcomes, and to examine the relationship between scale content on the new domains and domains on the existing NCFAS-G+R that might logically be expected to be affected by trauma symptomology.

Trauma and Post-Trauma Well-Being in Relation to Practice Variables and Service Outcomes

In the preceding section of this report it was determined that assignment to specialized trauma services was not affected by child age or by type of child maltreatment, per se. However, it does appear that service provision is affected by information relating to trauma symptomology. When the 5 service provision categories (none, mental health services, agency social worker/general, agency social worker/specialized in trauma treatment) were cross tabulated with being above or below baseline on each of the trauma scale items, some interesting relationships were observed.

When traumatic sexual abuse was rated below baseline, there was a strong and significant trend for sexual abuse victims to be referred to a mental health service provider for trauma services (chi-square = 10.92, df = 4, $p < .05$). When traumatic neglect was rated below baseline, there was a small but significant trend for neglectful families to be served by general service workers rather than specialized workers or mental health (chi-square = 10.63, df = 4, $p < .05$). When emotional/psychological abuse was rated below baseline, there was a significant trend for services to be provided by mental health service providers and general workers rather than specialized in-agency workers (chi-square = 12.47, df = 4, $p < .05$).

With respect to families in which traumatic physical abuse was rated below baseline there were no trends associated with who provided services (chi-square = 1.70, spaced = 4, $p = .79$). With respect to parental history of trauma (57% of all families were below baseline on the scale item) specialized trauma treatment workers within agencies and general workers within those

agencies were more heavily relied upon than mental health for services (chi-square = 10.74, df = 4, space $p < .05$). Finally, with respect to overall trauma being rated below baseline, no significant trends were obtained with respect to who provided services (chi-square = 7.72, df = 4, $p = .10$).

Taken together, these findings suggest that service assignment/referral trends are not necessarily associated with overall levels of trauma history or trauma symptomology, or those trends are small enough to be random. However, having an elevated overall trauma domain rating was likely to result in referral or provision of services associated with trauma, and that within specific types of trauma, workers appear to be using the information on trauma items to make treatment or service decisions in accordance with specific symptomology. Although the treatment and outcome data available for the study are secondary, and therefore cannot be used for "effects testing," the provision of those trauma-focus services is significantly statistically associated with post-trauma well-being ratings at or above baseline at the conclusion of services. It would be tempting to be more definitive with these findings if it was assured that all of the sites had equal access to the different types of services, including in-house trained specialists and mental health service providers. However, we cannot assure that equal access existed and therefore these findings, while favorable, desirable, and interesting, remain to be tested for causality.

In the present study, most of the participating social workers had received training on providing services to families and children exhibiting trauma symptomology. Some workers specialize in providing trauma-related services. The post service ratings on Post-Trauma Well-Being and post service ratings on other domains of the NCFAS-G+R suggest effective services were delivered by workers with basic trauma-informed practice training, by social workers specializing in trauma service, and by mental health providers. Depending on the level of training of social workers, the availability of specialized services, and the severity of trauma symptomology, consultation with professionals specializing in the amelioration and treatment of trauma may be warranted.

If services are successful, and post-trauma well-being improves, that improvement might logically be related to placement outcomes, or living arrangements of children at closure. For all families for whom post service living arrangement data, trauma ratings, and post-trauma well-being ratings were available (N = 99), 89% were living with a biological parent, adoptive parent, or with a relative. Thus, 11% were living in foster care. When the scale items of the Post-Trauma Well-Being Domain were cross tabulated with living arrangement at closure, no placement trends were found in relation to post-trauma cognitive/physical well-being, post-trauma emotional/psychological well-being, or post-trauma caregiver well-being. However, being placed or remaining in foster care at closure was found to be significantly related to being below baseline on post-trauma social functioning of the child (chi-square = 13.22, df = 3, $p < .01$), post-trauma parent/caregiver support of child (chi-square = 19.93, df = 3, $p < .01$), and overall post-trauma well-being (chi-square = 29.66, df = 3, $p < .01$). In every case, being below baseline/adequate increases the probability of remaining in or being placed in foster care.

As with the Trauma Domain findings, caution is warranted with respect to generalization of the findings relating to Post-Trauma Well-Being. While the trends noted in the preceding paragraph are statistically significant, they are based on an 11% placement rate of an overall population of 99 children, which is a fairly small number of families.

Convergent Validity: Correlations between the NCFAS-G+R Domain Ratings and the Trauma and Post-Trauma Well-Being Scale Items

The NCFAS-G+R domain ratings of family functioning can vary for a variety of reasons even in the absence of a history of trauma or trauma symptomology for children, caregivers, or both. However, if there is a history of trauma, that trauma and the recovery from that trauma as a result of treatment or services may logically relate to family functioning generally, and more specifically to particular domains of the NCFAS-G+R. Therefore, using family and child data from the 170 families in the study, a series of correlations were computed between the NCFAS-G+R domain ratings at intake and closure and various trauma scale ratings at intake and post-trauma well-being scale ratings at closure. The selections of NCFAS-G+R domains and scale items from the Trauma Domain and the Post-Trauma Well-Being Domain were based on pairings of the trauma and post-trauma well-being scale items and NCFAS-G+R domains that might logically and theoretically be expected to impact the NCFAS-G+R domain ratings.

Table 6, below, clearly illustrates the positive correlations between the NCFAS-G+R domain ratings at intake and the selected scale items from the new Trauma Domain. Each of the hypothesized relationships is statistically significant and some are quite robust, indicating convergent validity of the Trauma domain with the existing domains of the NCFAS-G+R at intake.

Among the more robust is the correlation between overall parental capabilities at intake and a parent or caregivers history of trauma. The correlation is .355, supporting the suggestion that the traumatic history may affect the parent's capability to care for his or her children.

Table 6. Correlations between selected Trauma Domain scale items and NCFAS-G+R domains ratings at intake. (N = 169 in all cases)

Domain or Scale Label	Scale or Domain Rating at Intake*	Pearson r Statistic	Probability
Overall Parental Capability-Intake	3.50		
Parent/Caregiver Trauma	3.99	.355	p < .01
Overall Family Interactions-Intake	3.51		
Parent/Caregiver Trauma	3.99	.194	p < .05
Overall Family Safety-Intake	3.53	.	
Traumatic Sexual Abuse	2.52	.351	p < .01
Traumatic Physical Abuse	2.78	.435	p < .01
Traumatic Neglect	3.44	.439	p < .01

Domain or Scale Label	Scale or Domain Rating at Intake*	Pearson r Statistic	Probability
Overall Child Well-Being-Intake	3.30		
Traumatic Sexual Abuse	2.52	.273	$p < .01$
Traumatic Physical Abuse	2.78	.316	$p < .01$
Traumatic Neglect	3.44	.290	$p < .01$
Traumatic Emotional/Psych Abuse	3.55	.364	$p < .01$
Overall Social/Community Life-Intake	3.19		
Parent/Caregiver Trauma	3.98	.293	$p < .01$
Overall Family Health-Intake	3.24		
Traumatic Sexual Abuse	2.52	.389	$p < .01$
Traumatic Physical Abuse	2.78	.271	$p < .01$
Traumatic Neglect	3.44	.353	$p < .01$
Traumatic Emotional/Psych Abuse	3.55	.323	$p < .01$
Parent/Caregiver Trauma	3.99	.367	$p < .01$

*Arithmetic average of ordinal scale points where: 1 = Clear Strength, 2 = Mild Strength, 3 = Baseline/Adequate, 4 = Mild Problem, 5 = Moderate Problem, 6 = Serious Problem.

Similarly, symptomology associated with various forms of traumatic child maltreatment including sexual abuse, physical abuse, and neglect are correlated with problems in overall family safety, with those correlations ranging from .351 to .439. Overall child well-being is similarly associated with traumatic symptomology on various forms of abuse including sexual abuse, physical abuse, neglect, and emotional/psychological abuse, with those correlations ranging from .273 to .364.

Overall family health at intake is associated with traumatic histories and symptomology, with traumatic child sexual abuse and parent/caregiver history of trauma being the most compelling, with correlations of .389 and .367, respectively.

The strength of these correlations suggests that while the theorized influence of traumatic symptomology on the original domains of the NCFAS-G+R do exist, are systematic, and are statistically significant, they are not so compelling as to suggest that they are superfluous and that the same information could be obtained by using only the original domains. The contents of the definitions of the scale items in the Trauma Domain are different from the definitions of the related original NCFAS-G+R domains and their attendant scale items. The strength of these correlations suggests that while the new information is consistent with overall family functioning, both positive and negative, the new information provided by the Trauma Domain is uniquely useful, as exhibited in the statistically significant relationships noted between the Trauma Domain scale items and various practice variables and service outcomes noted in the preceding section.

Ratings for scale items on the Post-Trauma Well-Being Domain are only available for families that had at least one problem domain rating on the trauma scales at intake. There were

113 families who met this criterion. Switching now to the closure ratings on the NCFAS-G+R domains, a series of correlation analyses were conducted between them and various scale items from the Post-Trauma Well-Being Domain that logically and theoretically might be expected to be associated with those domains. Like the intake and Trauma Domain scale analyses, each of the hypothesized relationships is statistically significant, indicating convergent validity of the Post-Trauma Well-Being domain with existing domains of the NCFAS-G+R at closure. These data are presented in table 7, below.

Each of the domain ratings and scale ratings in Table 7 are above baseline, suggesting that the reductions in traumatic symptomology are associated with improved family functioning on companion domains within the and NCFAS-G+R. For example, positive post-trauma parent/caregiver support for the child and the parent/caregiver's own well-being are positively correlated with overall parental capabilities at closure, with very robust correlations of .567 and .645, respectively. Similarly, the same two post-trauma scale items are strongly positively correlated with overall family interactions at closure, with correlations of .440 and .527, respectively. Most compellingly, reductions in traumatic parental symptomology are most strongly associated with overall family safety at closure, with parent/caregiver support of the child and the parent/caregiver's own well-being being strongly associated with overall family safety; the correlations being .645 and .662, respectively.

Amelioration of child trauma symptomology is associated with improvements in both child well-being and family health. These correlations are also robust. With respect to children, post-trauma strengths in cognitive and physical well-being, emotional and psychological well-being, and social functioning are positively correlated with overall child well-being at closure. While this is not surprising, it is important to note that without assessing for traumatic symptomology at intake, services might not have been identified to address these findings and assist other efforts at improving overall family functioning, including child well-being. Overall family health similarly benefits from the trauma informed approach, with correlations of .556 for cognitive and physical well-being and .436 for emotional and psychological well-being. Improvement in parent/caregiver well-being is also highly correlated with improvements in overall family health with a correlation of .628.

It remains true that positive correlations, even robust and compellingly strong correlations do not equate to causality. However, the presence of the positive correlations between traumatic histories/symptomology and family functioning at intake, and additional positive correlations between post-trauma well-being of children and parents and improved family functioning at closure, are noteworthy, and support the practice of assessing for trauma anytime families or children present with problems in overall family functioning, be they child-centered, caregiver-centered, or both. Similarly, if services are brought to bear that focus on trauma symptomology, it is appropriate to assess for post-trauma well-being at case closure.

Table 7. Correlations between selected Post-Trauma Well-Being scale items and NCFAS-G+R domains ratings at closure. (N = 113 in all cases)

Domain or Scale Label	Scale or Domain Rating at closure*	Pearson r Statistic	Probability
Overall Parental Capabilities-Closure	2.64		
P-T Parent/Caregiver Support for Child	2.39	.567	p < .01
P-T Parent/Caregiver Well-Being	2.89	.645	p < .01
Overall Family Interactions-Closure	2.50		
P-T Parent/Caregiver Support for Child	2.39	.440	p < .01
P-T Parent Caregiver Well-Being	2.89	.527	p < .01
Overall Family Safety-Closure	2.37		
P-T Parent Caregiver Support for Child	2.39	.645	p < .01
P-T Parent Caregiver Well-Being	2.89	.662	p < .01
Overall Child Well-Being-Closure	2.41		
P-T Cog/Phys Well-Being-Child	2.25	.568	p < .01
P-T Emot/Psych Well-Being-Child	2.50	.563	p < .01
P-T Social Functioning-Child	2.42	.576	p < .01
Overall Social/Community Life-Closure	2.61		
P-T Parent Caregiver Support for Child	2.42	.448	p < .01
P-T Parent Caregiver Well-Being	2.89	.550	p < .01
Overall Family Health-Closure	2.43		
P-T Cog/Phys Well-Being-Child	2.25	.556	p < .01
P-T Emot/Psych Well-Being-Child	2.50	.436	p < .01
P-T Parent/Caregiver Well-Being	2.89	.628	p < .01

*Arithmetic average of ordinal scale points where: 1 = Clear Strength, 2 = Mild Strength, 3 = Baseline/Adequate, 4 = Mild Problem, 5 = Moderate Problem, 6 = Serious Problem.

Conclusion

This report presents the findings of a field test of 2 domains recently added to the NCFAS-G+R to increase the scale's utility to practitioners using the NCFAS-G+R in any practice setting, by including content related to histories of trauma and trauma symptomology that may negatively impact family functioning, as well as post-trauma improvements in child well-being and parent/caregiver well-being important to case practice decisions relating to placement, permanency, and child and family safety and overall family functioning.

Analysis of the reliability of both the original NCFAS-G+R domains and the new domains of Trauma and Post-Trauma Well-Being, using Cronbach's Alpha as the statistic for reliability, indicate very reliable scale properties of both the old and new domains in the 3 practice settings

that contributed data to the study. Each of the contributing agencies operates high fidelity family preservation service programs, and the workers at each site were experienced using the NCFAS scales. Workers had little or no trouble using the new domains, as they are similarly constructed to the original NCFAS-G+R domains, with minimal clinical jargon, and are constructed to be intuitive and to embrace social worker judgment. In addition to the positive reliability findings, the relationships of scale item ratings to domain ratings for both the original NCFAS-G+R domains and the new domains indicate that workers used the instruments as designed and intended.

Analysis of the trends and associations of scale item ratings on the new domains with practice variables and outcome variables indicates substantial added value of this information to social work practice and the use of the NCFAS-G+R. The concept of "added value" is supported by the fact that significant, hypothesized correlations were found between scale items on the new domains and domain ratings of the original 10 domains of the NCFAS-G+R, without being so strong as to suggest that they were redundant. These findings suggest both the need to assess for trauma and traumatic histories, and convergent validity of the new trauma and post-trauma well-being domains in relation to the existing NCFAS-G+R domains.

Some of the positive findings require additional testing, particularly with respect to determining causality. This suggestion is based, in part, on the design of the present study, and, in part, on the fact that the distribution of services and referral sources across the 3 child serving agencies that participated in the study is unknown, but is likely not equivalent. That said, however, the information relating to trauma histories and trauma symptomology appears to have been used (statistically significantly so) by workers to make referral decisions, and positive post-trauma well-being for both children and parents/caregivers was significantly associated with positive service outcomes and appeared to correlate positively with improved family functioning in other areas.

These new domains are now available to practitioners as a tool intended to enable them to embrace trauma-informed practice, and to embrace new knowledge and information relating to the impact of trauma not only on symptomology, but also on the capacity of families to recover from trauma through the deliberate delivery of services focused on that symptomology.

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