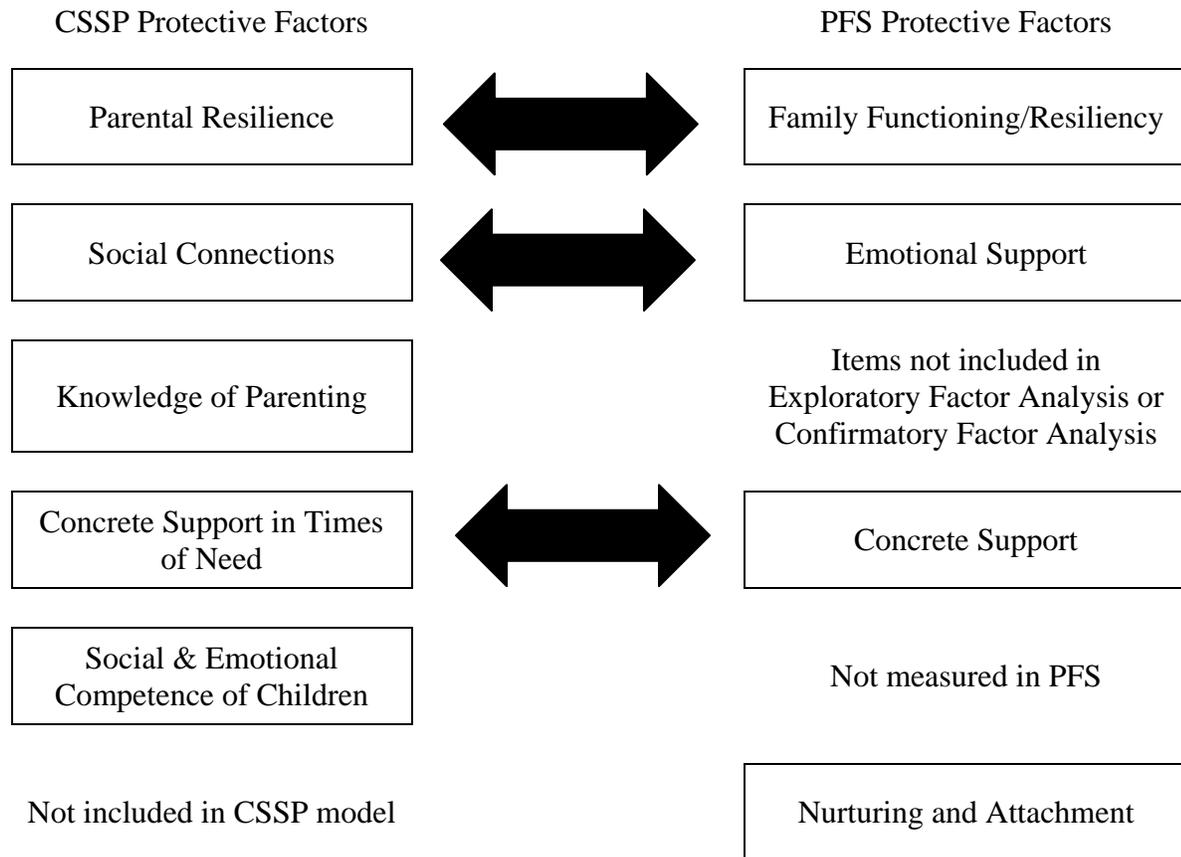


**The Development and Validation of the Protective Factors Survey:
A Self-Report Measure of Protective Factors against Child Maltreatment
Phase III Report**

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Introduction

Though there are numerous instruments designed to measure individual protective factors, there is not currently a single instrument that assesses *multiple protective factors* against child abuse and neglect. In 2005, the Texas Department of Family and Protective Services, in collaboration with the FRIENDS National Resource Center, began a project to address this need and develop alternative tools for Community-Based Child Abuse and Neglect Prevention. The intent was to develop an easily-administered survey that measures the protective factors as identified in the Center for the Study of Social Policy model, to develop alternative outcome measures that programs could utilize to demonstrate effectiveness, and to generate data for program improvement. Figure 1 shows the alignment of the CSSP protective factors with the PFS protective factors. This instrument has undergone several phases of field testing. The primary focus of the Phase I field test was to assess the face validity and internal structure of the instrument and to create a revised scale for further investigation.

Figure 1: Alignment of the CSSP and the PFS Protective Factors

The survey was designed to measure family protective factors. Two types of questions were included in the survey—attitudinal and behavioral. The PFS subcommittee, comprised of CBCAP grantees from several states, was charged with making recommendations regarding the most appropriate data collection process for gathering information on how prevention programs increase protective factors. The sub-committee generated a pool of items for the first field test and considered cultural appropriateness, reading levels, and survey length. In preparation for the first PFS field survey, program staff in Texas and the FRIENDS National Resource Center reviewed several validated and reliable instruments, discussed each item with the PFS Subcommittee, and created a pilot instrument. The instrument was presented to CBCAP state leads and the National Advisory Committee of the FRIENDS National Resource Center at the CBCAP

Grantees conference in March 2006. The Texas Department of Family and Protective Services staff then conducted two focus groups with parent consumers to gather information about the interpretation of the items, cultural appropriateness/ offensiveness of the items, and necessary revisions. Appropriate revisions were made and between April and August 2006, the first draft of the Protective Factors Survey (PFS) was field tested with 349 participants in Texas and Kansas. Based on the results of the Kansas and Texas pilot, the focus groups, and the advisory committee, the survey items were revised for the next administration phase.

Phase II of the study evaluated the internal structure of the revised scale and examined the relationships among the protective factors and other measures of risk for child abuse and neglect. Eleven agencies from four states ($N = 249$ participants) administered the Protective Factors Survey (PFS), the Brief Child Abuse Potential Inventory (Ondersma, Chaffin, Simpson, & LeBreton, 2005), and one other measure that assessed constructs hypothesized to correlate negatively with protective factors: depression, stress, and maladaptive coping. These measures were administered to help establish construct validity. Exploratory and confirmatory factor analyses yielded a four-factor solution, consisting of family functioning/resiliency, social emotional support, concrete support, and nurturing and attachment. Overall, the PFS subscales were significantly related to the measures of risk factors (i.e., child abuse potential, stress, depression, and maladaptive coping) in the direction predicted.

The purpose of Phase III was to evaluate the stability of the instrument over time and examine relationships between the protective factors and health and other measures of risk for child abuse and neglect.

Method

Participants

Participant Agencies. Agencies were recruited through the distribution of a recruitment flyer on numerous national electronic-mail based listservs including Early Childhood Comprehensive Systems (ECCS), Community-Based Child Abuse Prevention (CBCAP), Child Abuse Prevention Partners, Child Welfare League of America Southern Region, Circle of Parents, National Alliance of Children's Trust and Prevention Funds, and FRIENDS National Resource Center. The flyer was also distributed at the national 2007 CBCAP grantees' conference. Interested agencies completed a web-based registration survey; the Internet address for this survey was provided on the recruitment flyer. Seventy-one agencies completed the registration survey.

Participant Individuals. Participants were recruited by agencies that registered to participate in Phase III of validation for the Protective Factors Survey. Eligible participants included any individual receiving parenting-related services from a participating agency who would be available for survey administration at two different time points, approximately one month apart. A total of 691 surveys were collected from 19 agencies for Time One survey administration, and 291 surveys from 15 agencies were collected for Time Two survey administration. States participating in both survey administration time points were Georgia, Illinois, Kansas, Kentucky, Maine, New York, South Carolina, Virginia, and Washington.

Table 1 summarizes the demographic characteristics of the sample. The average age of the participants was 30.4 years and a majority of participants were female (89.3%). The ethnicity of the sample was diverse; White (Non-Hispanic) participants accounting for 62.5%, Native American (American Indian/Alaskan Native) 1.4%, African American 15.8%, Hispanic or

Latino/a 8.2%, Black (African Nationals/Caribbean Islanders) 8.9%, Multi-Racial 2.4%, and Asian and Native American/Pacific Islander less than 1%. Twenty-four percent of participants were referred by Child Protective Services ($N = 71$). A majority of the sample (80.4%) reported annual incomes equal to or less than \$30,000.

Study participants demonstrated moderate to high levels of program participation and duration. A majority of participants (72.5%) attended at least 75% of the time and had been enrolled in their program for more than three months (59.5%). The most common services received included parent education (67.4%), parent-child interaction (47.1%) home visitation, (34.4%), and resource and referral (29.6%).

Procedure

Participant Agency Technical Assistance. Following the registration period and prior to the beginning of survey administration, technical assistance on data collection was provided to participant agencies. Technical assistance was provided through two voluntary conference calls provided by staff from the Institute for Educational Research and Public Service at the University of Kansas (Institute). During the conference calls, the PFS Administration Training PowerPoint presentation and frequently-asked-questions were reviewed.

In addition, all registered agencies were mailed a complete PFS survey packet, containing both electronic and hard copies of the frequently-asked-questions, Administration Training PowerPoint presentation, and Phase III Manual. A staff member at the Institute was available for technical assistance questions throughout the data collection process.

Survey Administration. Program staff from participating agencies administered the PFS survey packets. Surveys were completed in face-to-face interviews or by participants with program staff present or not present. Participant agencies were instructed to use their agency-

approved informed consent process for survey administration and were provided with an example of an Informed Consent document in the Phase III Manual to use, if desired.

Participants completed the PFS survey packet in two timeframes. Time One survey administration took place during between August 17 and September 21, 2007. Time Two survey administration took place between September 22 and October 23, 2007. The same consumer participants completed the survey packets during each administration timeframe. The average time lag between Time One and Time Two was 34 days.

Following each administration timeframe, completed surveys were returned to the University of Kansas for data entry. Prior to the second administration timeframe, participant agencies were provided the case numbers of consumers who should receive the survey packet a second time, as well as a tentative date for Time Two administration.

Measures

Each agency received a survey packet composed of four instruments: the Protective Factors Survey, the PRIME-MD Patient Health Questionnaire, Perceived Stress Scale, and a measure of caregiver physical health and functioning (*RAND 36-Item Health Survey 1.0*). The additional measures were selected based on their relationships with known risk factors for abuse and neglect.

Protective Factors Survey. The PFS begins with a series of demographic items, some of which are completed by staff familiar with the participant. Staff questions include: 1) participant's survey experience, including the administration date, supports provided, and language version used, and 2) program dosage, specifically participant's length of involvement, types of services received, and current program status. The participant demographics section contains questions about family composition, income, and level of involvement with services.

Following the demographic items, participants are asked to respond to a series of 29 statements about their family, using a seven-point frequency or agreement scale

PRIME-MD Patient Health Questionnaire (PHQ). The PRIME-MD PHQ (Spitzer, Kroenke, & Williams, 1999) is a brief measure of depression, consisting of nine items based on DSM-IV diagnostic criteria. Participants are asked to indicate on a four-point scale whether, during the past two weeks, the symptom bothered them 1=not at all, 2=several days, 3=more than half the days, or 4=nearly every day.

Perceived Stress Scale. The Perceived Stress Scale (PSS; Cohen, Karmarck, & Mermelstein, 1983) is a 10-item scale assessing the experienced level of stress. Participants are asked to indicate how often they have felt or thought a certain way using the following scale: 0=never; 1=almost never; 2=sometimes; 3=fairly often; 4=very often. The PSS can be completed in less than five minutes.

Physical Health and Functioning. The Physical Health and Functioning instrument is a 19-item scale designed to measure caregiver health and functioning. The scale consists of items drawn primarily from the *RAND 36-Item Health Survey 1.0* (Hays, Sherbourne, & Mazel, 1993). On the survey, participants are asked to rate their experience of physical and emotional health and functioning for the previous four weeks using a variety of Likert-type scales; a higher number indicates better perceived health. The survey is designed to measure six health concepts: 1) physical functioning; 2) bodily pain; 3) role limitations due to physical health problems; 4) social functioning; 5) energy/fatigue; and 6) and general health perceptions.

Data Analyses

Three sets of analyses were conducted in Phase III. First, factor analyses were conducted to obtain a small, integrated set of items that tap the target protective factors. This was

accomplished by discarding those items that did not contribute to a cohesive, clearly defined factor structure. These analyses proceeded in two steps: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Second, structural equation modeling was used to assess the stability of the instrument over time. Third, regression analyses were conducted to assess the predictive validity of the instrument.

Results

Study Sample

The study sample included only those participants with both Time One and Time Two survey data. Because of attrition issues at Time Two, the possibility of sample bias was a concern. T-tests on group means were conducted to determine if the study sample ($N = 291$) differed significantly from the group with only Time One data ($N = 398$). The demographic variables analyzed included gender, sex, age, education, family income, and involvement in child protective services. No significant differences between the study sample and the Time One only sample were detected for gender and age. Slightly higher levels of education, income, and CPS involvement were identified for the study sample.

Descriptive Statistics and Internal Consistency Reliability

In preparation for the analyses, the data were examined for normality and internal consistency. Distributional normality is an important assumption in maximum likelihood factor analysis, particularly when the determination of the number of factors is a goal (Tabachnick & Fidell, 2007). Substantial skewness and kurtosis can bias the parameters of the factor model and signal the need for alternative methods of analysis. An examination of the internal consistency of the validation measures was conducted to assess the reliability of the scales. All of the validation

measures exhibited adequate inter-item consistency with Cronbach's alpha estimates ranging from .819 to .878.

Protective Factors Survey. The PFS was administered to a total of 291 participants from 15 agencies. The items are scored on Likert-type scales and many were skewed in prior field tests and exhibited moderate kurtosis. Accordingly, items were first examined for skew and kurtosis. Of the 28 PFS items, none had values of skew greater than three, and four had values for kurtosis greater than three: "I know how to help my child learn" (kurtosis = 3.34), "I am happy being with my child" (kurtosis = 6.57), "My child and I are very close to each other" (kurtosis = 4.80), and "My child comes to me when he/she is feeling upset" (kurtosis = 3.27).

Exploratory Factor Analysis

The exploratory factor analysis (EFA) stage excluded *Child Development / Knowledge of Parenting* items. The nature of these items did not lead to the expectation that they would necessarily be correlated, therefore there is no theoretical reason to expect them to conform to any particular factor structure (Bollen & Lennox, 1991; such items are often termed *formative* to denote their theoretical relationship to a hypothetical construct. In the aggregate, however, these items were expected to be related to criterion validity scales and will be discussed in the construct validation section. The exploratory factor analysis included the items theoretically serving as indicators of four factors: *Family Functioning/Resiliency*, *Emotional Social Support*, *Concrete Support*, and *Nurturing and Attachment*.

Mplus v. 5 (Muthén & Muthén, 1998-2007) was employed to fit EFA models using maximum likelihood (ML) estimation. Four-factor solutions were obtained using oblique direct quartimin rotation. The resulting loadings conformed closely to a 4-factor structure. However, in the process of factor analyzing the data, it became apparent that some items did not have

noteworthy loadings on any factors. Some items loaded on unexpected factors. Other items had large loadings on more than one factor. Cross-loading items are not necessarily problematic to include in multi-factor scales. However, because one of the goals of this phase was to identify a final set of items tapping clearly-defined factors (for eventual use as separate scales in some settings), an informal criterion for item retention was the presence of a single, large loading on the appropriate factor. Items that did not conform to this criterion were omitted from further consideration.

Other items were discarded to make all items representing a given protective factor share the same response scale. For three factors, the response scale (frequency or agreement) was the same for all but one of the items. The review team noted that inclusion of these items would make score interpretation more difficult because of the combined response scales. To ease interpretation, the single items that did not conform to the factor's primary response scale were eliminated.

In all, seven items were discarded on the basis of EFA. A 4-factor model was fit to the trimmed data. The same EFA model was fit to the Time Two data. Both Time One and Time Two factor loading matrices and factor correlation matrices are reported in Table 1, as are the fit indices for these models, including RMSEA and RMSR. Traditional criteria for RMSEA are that values less than .05 reflect close fit, but values less than .08 are acceptable (Browne & Cudeck, 1992). Values of RMSR less than .06 are usually deemed acceptable.

All four subscales demonstrated adequate levels of internal consistency. Cronbach's alphas for each subscale were, for Time One and Time Two respectively, Family Functioning/Resiliency (.87, .90), Emotional Social Support (.89, .88), Concrete Support (.76, .79), and Nurturing and Attachment (.81, .82).

Confirmatory Factor Analysis

The second stage of data analysis involved fitting a confirmatory factor model to the retained items in an attempt to provide stronger evidence for the parsimonious independent cluster solution suggested by EFA results. Mplus 5 was used to fit a 4-factor confirmatory model to the retained items in both Time One and Time Two data. Factor loadings and correlations are reported in Table 2, along with model fit indices. The results confirmed the 4-factor solution as a good fit.

Stability

The primary reason for collecting two waves of data was to establish the degree to which the PFS subscales remain stable over time. We hypothesized that (1) the Protective Factors are significantly correlated over time, providing evidence for construct stability, and (2) the within-factor correlations are stronger than the between-factor correlations. Correlations of the Protective Factor latent variables are reported in Table 3. Both hypotheses were supported.

Because the PFS subscales are likely to be used in practice by averaging the scores of items within each factor to form subscale scores, it was also important to demonstrate stability of these subscale scores. The Time One – Time Two correlations are: Family Functioning/Resiliency (.750), Emotional Social Support (.679), Concrete Support (.515), and Nurturing and Attachment (.731), all significant at $\alpha = .05$. The six Knowledge of Parenting Items also demonstrated acceptable stability over time. These correlations are: PFS19 (.545), PFS20 (.292), PFS21 (.568), PFS22 (.587), PFS23 (.482), and PFS28 (.643) and were significant at the $p = .05$ level.

Predictive Validity

The exploratory and confirmatory factor analyses and stability analyses point to an internally consistent, factorially sound set of items that remain stable over time. Three measures were administered to assess constructs that were predicted to correlate negatively with the protective factors: depression (PRIME-MD PHQ; Spitzer, Kroenke, & Williams, 1999), stress (PSS; Cohen, Kamarck, & Mermelstein, 1983), and the six subscales of the modified Rand 36 Health Survey. Subscales of the Rand Health Survey included *general health, physical functioning, role limitations due to physical health, social functioning, pain, and energy fatigue*. All participants received the PFS, PHQ, PSS, and Rand Health Survey.

To examine the predictive validity of the PFS, each of the criterion validity measures was correlated with the Time One PFS subscales. Results are reported in Table 4. As expected, the Time One PFS subscales were negatively related to Time Two stress and depression and positively related to all six subscales of the Rand Health Survey at Time Two. Two exceptions were the nonsignificant relationships between Time One Concrete Support and Time Two depression, and between Time One Nurturing and Attachment and Time Two physical functioning.

Summary

The purposes of this phase of field testing were to: (1) obtain a small, integrated set of items that tap the protective factors and confirm the factor structure, (2) evaluate the temporal stability of the factors, and (3) examine the predictive validity of the Protective Factors Survey. Findings indicate that the retained items conform to a four-factor structure, as suggested by the exploratory factor analysis results. The subscale scores also were stable over time and showed adequate levels of internal consistency at both time points. Further, the Time One PFS subscales were significantly correlated with measures of stress, depression, and health taken at Time Two.

Taken together, these results suggest that the PFS is a measure that is internally consistent, with a factorially sound set of items that remain stable over time. Further, the PFS negatively predicts risk factors for child abuse and neglect (stress and depression) and positively predicts caregiver health.

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Table 1

Factor Loadings, Factor Correlations, and Model Fit Indices for Time One and Time Two Exploratory Factor Analyses

Loadings	Time One				Time Two			
	FF	NA	ES	CS	FF	NA	ES	CS
PFS1	.738	.036	-.046	.010	.718	.066	.114	-.003
PFS3	.848	-.015	-.018	.001	.834	-.017	.006	.017
PFS4	.908	-.013	-.035	.010	.978	.011	-.102	-.001
PFS5	.662	.073	.105	-.019	.757	-.034	.101	-.034
PFS8	.582	-.004	.228	.012	.579	.044	.151	.062
PFS9	.056	-.030	.826	.008	.063	-.013	.883	.034
PFS13	.010	.033	.847	.007	-.011	-.024	.874	.017
RPFS14	-.027	.027	.006	.788	-.004	.048	-.019	.839
RPFS15	.022	-.005	.000	.849	.010	-.037	.017	.942
PFS16	-.044	.007	.865	.007	-.032	.074	.773	-.060
RPFS17	.009	-.050	.003	.553	-.045	.044	-.017	.514
PFS24	-.036	.701	.023	-.031	.000	.664	.039	.059
PFS25	-.022	.783	-.025	.021	-.018	.870	.002	.013
PFS26	.020	.742	.001	.045	.010	.738	-.018	-.045
PFS27	.071	.674	.018	-.048	.049	.682	-.010	-.011

Correlations								
	FF	NA	ES	CS	FF	NA	ES	CS
FF	1.000				1.000			
NA	.427	1.000			.403	1.000		
ES	.570	.342	1.000		.575	.259	1.000	
CS	.246	.174	.368	1.000	.185	.142	.238	1.000

Model fit indices	
CFI	.985
TLI	.969
RMSEA	.046, 90% CI: {.036, .056}
SRMR	.016

Note. Loadings and correlations in boldface are statistically significant at $\alpha = .05$. FF = Family Functioning/Resiliency; NA = Nurturing and Attachment; ES = Emotional Support; CS = Concrete Support.

Table 2

Factor Loadings, Factor Correlations, and Model Fit Indices for Time One and Time Two Confirmatory Factor Analyses

Loadings	Time One				Time Two			
	FF	NA	ES	CS	FF	NA	ES	CS
PFS1	.728				.820			
PFS3	.822				.834			
PFS4	.870				.898			
PFS5	.765				.805			
PFS8	.735				.714			
PFS24		.679				.685		
PFS25		.758				.864		
PFS26		.768				.727		
PFS27		.708				.699		
PFS9			.851				.943	
PFS13			.872				.850	
PFS16			.837				.746	
RPFS14				.784				.843
RPFS15				.861				.939
RPFS17				.541				.509

Correlations								
	FF	NA	ES	CS	FF	NA	ES	CS
FF	1.000				1.000			
NA	.451	1.000			.422	1.000		
ES	.605	.358	1.000		.613	.268	1.000	
CS	.266	.183	.380	1.000	.196	.139	.263	1.000

Model fit indices	
CFI	.976
TLI	.970
RMSEA	.046, 90% CI: {.038, .054}
SRMR	.031

Note. Loadings and correlations in boldface are statistically significant at $\alpha = .05$. FF = Family Functioning/ Resiliency; NA = Nurturing and Attachment; ES = Emotional Support; CS = Concrete Support.

Table 3

Time One – Time Two Correlations of PFS Factors

Correlations

	FF1	ES1	CS1	NA1	FF2	ES2	CS2	NA2
FF1	1.000							
ES1	.605	1.000						
CS1	.265	.376	1.000					
NA1	.451	.359	.180	1.000				
FF2	.829	.578	.234	.364	1.000			
ES2	.495	.764	.300	.228	.628	1.000		
CS2	.271	.364	.624	.164	.197	.276	1.000	
NA2	.344	.241	.169	.814	.429	.249	.147	1.000

Model fit indices

CFI	.940
TLI	.930
RMSEA	.044, 90% CI: {.040, .048}
SRMR	.042

Note. All correlations are significant at $\alpha = .05$. FF1 = Time One Family Functioning/ Resiliency, ES1= Time One Emotional Support, CS1 = Time One Concrete Support, NA1 = Time One Nurturing & Attachment, FF2 = Time Two Family Functioning/ Resiliency, ES2= Time Two Emotional Support, CS2 = Time Two Concrete Support, NA2 = Time Two Nurturing & Attachment.

Table 4

Time One PFS – Time Two Criterion Scale Correlations

	Stress	Depr.	General Health	Physical Funct.	Role Limit.	Social Funct.	Pain Pain	Energy/Fatigue
FF1	-.452	-.283	.325	.144	.228	.223	.214	.281
ES1	-.321	-.297	.305	.145	.267	.295	.209	.232
CS1	-.253	-.107	.147	.140	.118	.209	.121	.133
NA1	-.229	-.185	.175	.073	.120	.173	.159	.135

Note. Correlations in boldface are statistically significant at $\alpha = .05$. FF1 = Time One Family Functioning/ Resiliency, ES1= Time One Emotional Support, CS1 = Time One Concrete Support, NA1 = Time One Nurturing & Attachment.