

Strengths Needs and Resilience among Foster Care Youth: A Measurement Model

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Abstract

Recent research studies indicate that strengths possessed by underprivileged youth may mediate the impact potentiated by adverse life circumstances on deleterious developmental outcomes in Foster Care (Smokowski, Reynolds, & Bezruczko, 2000). As such, this study proposed to explore the processes by which strengths may act as mechanisms of psychiatric improvement by delineating the influences of strengths upon developmental outcomes (Gillham, Reivich, & Shatte, 2002). This paper also identifies the main predicting factors of strength based services for youth in foster care. Effective treatment in foster care formative years often leads to positive contributions made by youth who overcome disadvantage and mature into generative adults, while society must devote human and financial resources to assist and remediate youth who remain limited by adverse circumstances. This paper determines whether pairs of correlations differed significantly at the alpha level of .05, by using a t-test for differences between strength and needs dependently sampled correlations.

Keywords: Strengths, needs, correlations, regression and research

1. Introduction

According to de Carvalho and Schumacker (2013), research has helped to identify how symptoms, deficits, needs and strengths impact the human experience across development. Recent investigations indicate that strengths, both those possessed by the individual, and those present in her/his environment, exert short and long-term protective effect that buffers the impact of needs. Findings of a longitudinal research study conducted by Mason and Windle (2002) help legitimate the emerging popularity, among providers and consumers, of strengths-based interventions for youth. Strengths based interventions are derived from the system of care philosophy, a treatment model that aims to utilize individual and environmental resources in therapeutic processes.

The U.S. Department of Health and Human Services (2014) suggested that utilizing strengths in treatment promotes positive outcomes and that strengths-based interventions may be more effective than traditional, deficit-based services. Nonetheless, questions remain regarding the clinical utility of strengths. This paper proposes that answers to these questions can be approached by delineating the pattern of relationships between strengths and needs across time in an at-risk youth population. The excess of one half-million youth in foster care across the United States represents a group at high risk for undesirable outcomes. Thus, this study examines the longitudinal pattern of correlations obtained between strengths and needs in a sample of 100 foster care youth receiving System of Care services. Strengths and needs each were measured at specific and aggregate levels with the Child and Adolescent Needs and Strengths (CANS) Assessment (Gillham, et al., 2002).

For the purposes of this study, strengths will be defined as positive attributes belonging to the child, his/her family, or his/her community that promote the child's wellbeing and healthy development (Epstein, 1999).

In contrast, needs will be defined as negative elements exhibited by the child, his/her family, or his/her community that place the child at risk for maladjustment and undesirable outcomes (Compas, Hinden, & Gerhardt, 1995). Recent research indicates that the strengths possessed by disadvantaged youth, especially if identified and cultivated, may mediate the deleterious developmental impacts potentiated by adverse life circumstances (Smokowski, Reynolds, & Bezruczko, 2000).

Subsequently, the study aimed to better understand the processes by which strengths may act as mechanisms of clinical improvement by delineating the influences of strengths upon developmental outcomes (Gillham, Reivich, & Shatte, 2002). Twenty percent of children and adolescents around the world endure mental health problems, but most are underserved or receive services not appropriate for their conditions (DeAngelis, 2004; Lyons, Howard, O'Mahoney, & Lish (1997). Perhaps most in need of quality services are the 550,000 children and adolescents in foster care (U.S. Department of Health and Human Services, 2003).

The study tested the suitability of the community and strengths-based model for the system of care targeting the identification of factors to be used in the prevention of negative outcomes for juveniles. This was accomplished by testing the following research question: What is the relationship between adversity, and resilience among at risk juveniles in the areas of child behavioral / emotional needs and strengths?

The statistical hypotheses for the study were:

Hypothesis 1: There is a statistically significant relationship between strengths and needs

Hypothesis 2: There is a statistically significant relationship between strengths and resiliency

Hypothesis 3: There is a statistically significant relationship between needs and resiliency

2. Method

This quantitative quase-experimental research study was conducted through the Mental Health Services Program (MHSP) at Garner & Associates. The MHSP works in collaboration with the State of Texas System of Care (STSC) Program to plan and evaluate foster care services for thousands of wards of the state across Texas. Wards are referred for services by the private foster care provider when there is a concern about placement stability. The STSC program provides strengths based clinical services to youth and family members across settings that include the family's home, residential treatment centers, and foster homes statewide. The study included 100 foster care youth receiving System of Care services. Strengths and Needs in Foster Care Youth each were measured at specific and aggregate levels with the Child and Adolescent Needs and Strengths (CANS) Assessment.

The sample was randomly selected and data were collected in the spring of 2016. Data for this study contained no identifiable personal information from any of the respondents. Secondary data was used to generate a subset data file, targeting a systematic random sampling of $n=100$. Subsequently, the data collected was entered into the Statistical Package for Social Sciences (SPSS) and used to assess strengths, limitations and academic propensities of high school students. The minimum ratio of valid cases to independent variables for multiple regression is 5 to 1. With 100 valid cases and 15 independent variables, the ratio for this analysis is over 5 to 1, which exceeds the preferred ratio of 20 to 1 requirement (Cohen, 1969; Creswell, 2003; Olejnik, & Algina, 2000).

An acceptable sample size with a confidence level of .05 decreases the likelihood of committing a type I error (Romão, Delgado & Costa, 2010) commonly known as a false positive (Rubin & Babbie, 2006). On the other hand, a sufficiently large sample size with an alpha of .05 increases the statistical power and decreases the chances of a type II error, which is failing to reject the null hypothesis when in fact there is a difference (Rubin & Babbie, 2006; Rosenthal, 2001). Prior to data collection a research proposal application was submitted to the Institutional Review Board (IRB) and approval was granted.

3. Instrumentation

Study participants were given a questionnaire packet including the Child and Adolescent Needs and Strengths (CANS) survey and relevant demographic items. The CANS-MH is a 45-item measure that is designed to integrate psychometric and clinimetric approaches to assessment by combining technical precision and clinical utility. The CANS can be completed in a matter of minutes, yet its design affords a comprehensive snapshot of the youth's functioning across several contexts (Dumont & Provost, 1999; Gillham, et al., 2002). Recent research suggests that the CANS is a viable choice for these purposes, with evidence for its inter-rater reliability, and predictive validity in particular, having recently been reported (Anderson, Lyons, Giles, Price, & Estles, 2003; Lyons, et al., 2004; Lyons et al., 2001). Further, the CANS possesses concurrent validity with the widely used Child and Adolescent Functional Assessment Scale (CAFAS; Hodges, 1997).

Moderately high Pearson's r correlations obtained between ratings on the CANS and CAFAS indicate mutual validation of the measures, while not suggesting that they are mere duplicates (Dilley, Weiner, Lyons, & Martinovich, 2005; Lyons, et al., 2004; Rautkis, Hdalio & Lyons, 2001). The CANS possesses relatively greater ease-of-use and accessibility, which may also be reasons the IL-DCFS implements it over the CAFAS. A final reason the CANS is used by the SOC program and that it is an appropriate measure for the variables of interest in the present study is its developmental sensitivity. Because what is considered 'normal development' changes with age, rating CANS items necessitates attention to the youth's environmental circumstances and developmental stage.

4. Data analysis

Multiple regression analysis and other statistical tests were performed to analyze the data using the Statistical Package for the Social Sciences (SPSS) data analysis software. Scores on every CANS item and domain were averaged within youth and then across the sample. Aggregate strengths comprised mean scores on all strength-related items and aggregate means comprised mean scores on all non-strength, or need-related items. Additionally, multiple regression analyses were run for each set of variables hypothesized to test whether a significant relationship existed between *Strength / Needs* (and its subscales) and resilience of at risk youth.

In an effort to avoid Type I or Type II error, multiple regression design requires that the dependent variable be metric and the independent variables be metric or dichotomous. Furthermore, the most frequently cited assumptions in the statistical literature were tested, including, a) normal distribution of continuous variables, b) no multicollinearity, c) linearity between independent and dependent variables, d) homoscedasticity and reliability of all variables. Any statistical indices concerning the model that were not robust or violated regression assumptions were statistically transformed to meet statistical regression guidelines. Subsequently, scores from the CANS and the demographic survey were used to analyze all variables.

The parametric test, stepwise multiple regression and ANOVA analyses were used to determine if any relationships or differences existed between variables of interest. Thus, stepwise multiple regression analysis was used to identify the subset of independent variables with the strongest correlations to the dependent variable and test the study research question (Bracey, 2003; Creswell, 2003; Gravetter & Wallnau, 2005; Kirkpatrick & Feeney, 2007). The standard alpha of 0.05 was used to determine if there is a significant relationship between the independent variables, *strengths / needs* and dependent variable, *resilience*.

5. Results

To answer the research question, regarding the relationship between needs and strengths factors, and resilience among low a, separate ANOVA and Regression analysis were run for each set of variables hypothesized to test whether a significant relationship existed between *strengths / needs* (and its subscales) and resilience of at risk juveniles. Next, stepwise regression and ANOVA analyses were run to determine if any relationships or differences existed between variables of interest. The main goal, however, was to answer the study research question by producing a predictive model that is parsimonious and accurate while excluding variables that did not contribute to explain variances in the dependent variable.

The measurement model was tested using stepwise to look into the correlation matrix, select variables with the largest Pearson correlation and enter them consecutively into the regression equation as strongest predictors of the dependent variable, resilience (GPA). The following latent variables were entered into the model to test if they were statistically significant contributors to the multiple regression equation. The Pearson correlation and descriptive statistics of the variables in the model are shown in Table 1.

Table 1. Descriptive Statistics

	Mean	Std. Deviation	N
RESILIENCY_LOG	.6464	.16708	97
CHILDRISKBEHAVIOR	4.7423	3.67502	97
CHILDBEHAVIOREMOTIONALNEED	11.0928	4.76551	97
LLIFEDOMAINFUNCTIONING	12.7526	5.43145	97
CAREGIVERSTRENGTHSNEEDS	10.4330	5.37143	97
CHILDSTRNGTHS	22.1959	6.00805	97
CCULTURE	.5670	1.33000	97
SSUCIDERISKMODULE	2.4124	1.28089	97
VVIOLENCEMODULE	3.8660	1.53859	97
EMOTIONALBEHAVIORRISKS	5.9278	2.41630	97
SSABSEXUALLYAGGRESSIVEBEHAVIOR	10.1237	1.10168	97
RRUNWAY	8.0928	2.52109	97
JJUVENALJUSTICE	9.0309	2.07893	97
FFIRESETTING	8.0103	.97355	97
TTRAUMA	7.7938	3.32584	97
SSUBSTANCEUSE	6.3711	1.49527	97
SSCHOOL	5.7010	2.80314	97
DDEVEDLOPMENTALNEEDS	3.1856	1.16664	97
FFAMILYCARETAKER	7.3505	3.43099	97
PPSYCHIATRICHOSPITALIZATIONHISTORY	4.9072	2.17506	97

The initial model (Table 1) hypothesized that Resilience is predicted by the variables listed in Table 1. However, this initial model, did not have acceptable model fit statistics. Although, regression correlations between most of the independent and dependent variables were statistically significant ($p < .05$), only five independent variables (EMOTIONALBEHAVIORRISKS, RUNWAY, SEXUALLYAGGRESSIVEBEHAVIOR, CHILDRISKBEHAVIOR, SCHOOL) satisfied the statistical criteria for entry into the regression model. The independent variable, SCHOOL had the largest correlation (.73) in relation with the dependent variable, Resilience. CHILDRISKBEHAVIOR had the second largest correlation (.70). Other variables in the initial model did not have sufficient statistical indices to be included in the multiple regression analysis (Carver & Nash, 2006). See Table 2.

Table 2. Variables Entered/Removed

Model	Variables Entered	Method
1	EMOTIONALBEHAVIORRISKS	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).
2	RUNWAY	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).
3	SABSEXUALLYAGGRESSIVEBEHAVIOR	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).
4	CHILDRISKBEHAVIOR	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).
5	SCHOOL	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).

The model summary statistics indicating the 'goodness of fit' of the model is projected in Table 3. This table showed the multiple correlation coefficients R, the R-squared (R²) and the Adjusted R-Squared (R²) version of this coefficient, which can range from 0 to 1 and indicate the 'goodness of fit' of the model.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.627 ^a	.393	.386	.13091	.393	61.381	1	95	.000	
2	.658 ^b	.433	.421	.12710	.041	6.775	1	94	.011	
3	.687 ^c	.472	.455	.12339	.038	6.744	1	93	.011	
4	.709 ^d	.503	.481	.12038	.031	5.708	1	92	.019	
5	.730 ^e	.533	.508	.11724	.031	5.981	1	91	.016	2.225

Results revealed that the model containing the five variables, (EMOTIONALBEHAVIORRISKS, RUNWAY, SEXUALLYAGGRESSIVEBEHAVIOR, CHILDRIKBEHAVIOR, SCHOOL) predicted 53.3 percent of the respondent's resilience. Applying Cohen's criteria for effect size, the relationship between *Resilience Factors* and the five independent variables was characterized as very strong (Multiple R = .73). The multiple regression square value was .53 and its adjusted square was .58. The model showed that about 50% of the total variation in the resilience factors of the respondents to be accounted for by a linear combination of the five independent variables in the model summary (Rosenthal, 2001).

Additionally, the Durbin-Watson statistics suggest that values of test results should range from 1.5 to 2.5. Since Durbin-Watson results shown on Table 3 are 2.22 it is safe to conclude there is no issue of multicollinearity. The absence of multicollinearity suggests that another requirement for multiple regression analysis is satisfied, which increases validity of the multiple regression results. ANOVA tested the statistical significance of the model as results of displayed in table 4. indicate that the linear combination of the variables, EMOTIONALBEHAVIORRISKS, RUNWAY, SEXUALLYAGGRESSIVEBEHAVIOR, CHILDRIKBEHAVIOR and *SCHOOL* had a statistically significant relationship with resilience ($F(1) = 61.381$, $p < 0.01$) as hypothesized.

Table 4. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.052	1	1.052	61.381	.000 ^b
	Residual	1.628	95	.017		
	Total	2.680	96			
2	Regression	1.161	2	.581	35.944	.000 ^c
	Residual	1.519	94	.016		
	Total	2.680	96			
3	Regression	1.264	3	.421	27.675	.000 ^d
	Residual	1.416	93	.015		
	Total	2.680	96			
4	Regression	1.347	4	.337	23.234	.000 ^e
	Residual	1.333	92	.014		
	Total	2.680	96			
5	Regression	1.429	5	.286	20.790	.000 ^f
	Residual	1.251	91	.014		
	Total	2.680	96			

The strength of F-values and the p-values been far from ($p < 0.05$) indicated correlation exists among the five independent variables in the model, which together, they explain 53% of the variance of the dependent variable, *Resilience* as shown in Table 4.

Table 5. shows the beta weights (sometimes called *regression coefficients*) and the statistical significance associated with the beta weights. The regression coefficients table include un-standardized regression weight (β), standard error of estimate ($SE\beta$), the standardized coefficient, the t-ratio, tolerance values, VIF values and level at which the t-value is statistically significant. The estimated regression coefficients represent levels of the predicted changes in the dependent variable by each of the independent variable in the model.

Table 5. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	.390	.035		11.014	.000	.319	.460					
EMOTIONALBEHAVIORRISKS	.043	.006	.627	7.835	.000	.032	.054	.627	.627	.627	1.000	1.000
2 (Constant)	.293	.051		5.800	.000	.193	.393					
EMOTIONALBEHAVIORRISKS	.041	.005	.594	7.555	.000	.030	.052	.627	.615	.587	.975	1.026
RRUNWAY	.014	.005	.205	2.603	.011	.003	.024	.299	.259	.202	.975	1.026
3 (Constant)	.578	.120		4.808	.000	.339	.817					
EMOTIONALBEHAVIORRISKS	.041	.005	.587	7.683	.000	.030	.051	.627	.623	.579	.974	1.027
RRUNWAY	.020	.006	.297	3.529	.001	.009	.031	.299	.344	.266	.800	1.250
SSABSEXUALLYAGGRESSIVEBEHAVIOR	-.033	.013	-.216	-2.597	.011	-.058	-.008	-.070	-.260	-.196	.820	1.220
4 (Constant)	.540	.118		4.560	.000	.305	.775					
EMOTIONALBEHAVIORRISKS	.047	.006	.685	8.051	.000	.036	.059	.627	.643	.592	.747	1.339
RRUNWAY	.025	.006	.373	4.232	.000	.013	.036	.299	.404	.311	.698	1.433
SSABSEXUALLYAGGRESSIVEBEHAVIOR	-.032	.012	-.213	-2.619	.010	-.057	-.008	-.070	-.263	-.193	.819	1.220
CHILDRISKBEHAVIOR	-.010	.004	-.221	-2.389	.019	-.018	-.002	.239	-.242	-.176	.634	1.578
5 (Constant)	.546	.115		4.736	.000	.317	.776					
EMOTIONALBEHAVIORRISKS	.045	.006	.652	7.772	.000	.034	.057	.627	.632	.557	.728	1.373
RRUNWAY	.024	.006	.365	4.254	.000	.013	.035	.299	.407	.305	.697	1.435
SSABSEXUALLYAGGRESSIVEBEHAVIOR	-.037	.012	-.242	-3.022	.003	-.061	-.013	-.070	-.302	-.216	.801	1.248
CHILDRISKBEHAVIOR	-.012	.004	-.267	-2.905	.005	-.020	-.004	.239	-.291	-.208	.607	1.649
SSCHOOL	.012	.005	.193	2.446	.016	.002	.021	.323	.248	.175	.820	1.219
a. Dependent Variable: RESILIENCY LOG												

a. Dependent Variable: RESILIENCY_LOG

For the independent variable EMOTIONALBEHAVIORRISKS, results indicated a standardized beta weights of .652, a standard error of .006, and a T-value equal to .652 that was statistically significant at the $p < .05$ level of significance. Regression analysis results further indicated the independent variable, RUNWAY had a standardized beta weight of .365 a standard error of .006, and a T-value equal to 4.254 that was statistically significant at the $p < .05$ level of significance.

For the independent variable SEXUALLYAGGRESSIVEBEHAVIOR, results indicated a standardized structure coefficient of -.242, a standard error of .012 and T-value equal to -3.022 that was negative and statistically significant at the $p < .05$ level of significance. Furthermore, the independent variable CHILDRISKBEHAVIOR, had a structure coefficient of -.267 a standard error of .004, and a T-value equal to -2.905 that was statistically significant at the $p < .05$ level of significance. Lastly, the independent variable, SCHOOL results indicated a standardized beta weights of .193, a standard error of .005, and a T-value equal to 2.446 that was statistically significant at the $p < .05$ level of significance.

The independent variables EMOTIONALBEHAVIORRISKS and RUNWAY had the highest structure coefficient indicating they were the main predictors of resilience. The other independent variables (SEXUALLYAGGRESSIVEBEHAVIOR, CHILDRIKBEHAVIOR and SCHOOL) had a lower level of premiums associated with resilience. At any rate, all the correlations between, the independent variables and the dependent variable were statistically significant. Therefore, we reject the null hypothesis that the slope associated with the independent variables in the model is equal to zero ($b = 0$) and conclude that there is a statistically significant relationship between the independent variables in the model and resilience as hypothesized.

Implications for Practice

The study findings help legitimate the emerging popularity, among providers and consumers, of strengths-based interventions for youth. Strengths based interventions are derived from the system of care philosophy, a treatment model that aims to utilize individual and environmental resources in therapeutic processes. Preliminary research suggests that utilizing strengths in treatment promotes positive outcomes and that strengths-based interventions may be more effective than traditional, deficit-based services. Nonetheless, questions remain regarding the clinical utility of strengths. This paper suggests that answers to these questions can be approached by delineating the pattern of relationships between strengths and needs among at risk youth population.

The excess of one half-million youth in foster care across the United States represents a group at high risk for undesirable outcomes. Thus, the findings of this study indicate the importance of embracing research-supported treatment services for foster care youth by providing timely and developmentally appropriate services of sufficient intensity and duration to build resilient youth. This requires actively coordinating health, mental health, and educational programs so that assessments are shared a comprehensive yet individualized treatment plan is developed for every youth. And, consistent with a risk and resilience approach, it requires services that reduce identified risk factors and promote protection in the least restrictive environment with the least amount of burden of the foster family.

To change the outcomes for foster care youth, a combination of both early intervention and research studies with high research rigor is needed. Despite the use of mental health services by the foster care system, the application of evidence-based treatment is very low, with most of the focus on treatment of sexual abuse (U.S. Public Health Service, 2000). Little attention is given to the deleterious effects of neglect, and neglected children in foster care often receive no mental health treatment. There is an urgent need to close the gap between research and practice in providing evidence-based services to foster care youth. This include providing adequate and appropriate education and training to foster parents; recognizing and managing the range of health and mental health problems related to child maltreatment; and creating innovative, more effective prevention and treatment services.

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