The impact of the Solution Based Casework (SBC) practice model on federal outcomes in public child welfare

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ABSTRACT

Objective: To test the effects of the Solution-Based Casework practice model on federal outcomes of safety, permanency and well-being. The Solution-Based Casework model combines family development theory, solution-focused skills and relapse prevention for the casework process in child protection.
Method: 4,559 public child welfare cases were reviewed through a CQI case review process.
Results: This study found that cases with high levels of fidelity to the model demonstrated significantly better outcomes in the areas of child safety, permanency and well-being and exceeded federal standards, while cases with low fidelity to the model failed to meet federal standards.
Conclusion: Components of the Solution-Based Casework were significant predictors of these federal outcomes and accounted for variance in these outcomes better than any other casework process factors.

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The field of child welfare has long been charged with the responsibility of protecting children from abuse and neglect. However, there has been a growing emphasis on documenting the outcome of those efforts, specifically in the areas of child safety, permanency, and well-being due to the passage of the Adoption and Safe Families Act (ASFA) of 1997 (Gendell, 2001) and the Government Performance and Results Act of 1993 (Kautz, Netting, Huber, Borders, & Davis, 1997). When ASFA identified key outcomes of child safety, permanency, and well-being for state child welfare agencies, the federal government implemented the Child and Family Service Review (CFSR) process to monitor compliance with these outcomes.

The Child and Family Services Reviews (CFSRs), authorized by the 1994 Amendment to the Social Security Act (SSA) and administered by the Administration for Children and Families (ACF), require the federal government and state child welfare agencies to work as a team in assessing states' capacities to promote positive outcomes for children and families being served in the child welfare system. The CFSRs emphasize 4 areas: family-centered practice, community-based practice, individualized services, and strengthening parental capacity (http://www.acf.hhs.gov/programs/cb/cwmonitoring/tools_guide/hand-2.htm). This process includes: (1) statewide assessment prepared by the state child welfare agency; (2) state data profile prepared by the Children's Bureau of the US Department of Health and Human Services; (3) reviews of 65 cases at 3 sites throughout the state; and (4) interviews or focus groups (conducted at all 3 sites and the state-level) with stakeholders including, but not limited to children, youth, parents, foster parents, all levels of child welfare agency personnel, collaborating agency personnel, service providers, court personnel, and attorneys.

Results from the first round of CFSRs between 2001 and 2004 indicate that there were only 6 states that were in substantial conformity with the 2 federal safety outcomes, which measure the protection of children from abuse and neglect (http://www.acf.hhs.gov/programs/cb/cwmonitoring/results/genfindings04/ch1.htm). While no states were in substantial conformity with the federal permanency outcome that centered on permanent and stable living situations for children, there

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were 7 states that met the criteria for preserving family relationships and connections. There was also wide variability in states' conformity with the federal well being outcomes. Although 17 states were in substantial conformity with the well being outcome that focused on children's educational needs, there was only 1 state that met the criteria for providing for children's physical and mental health needs and there were no states that met the criteria for enhancing family capacity to provide for children's needs.

Evidence based child welfare practice

Despite the prevalence of a federal focus on child maltreatment and outcomes of efforts to prevent and ameliorate child maltreatment, effective and enduring child welfare interventions remain elusive. Although the National Association of Public Child Welfare Administrators has recognized the call to evidence-based approaches in child welfare, they caution that the research base in child welfare is still in its early development, and the pace of science may not be adequate to meet the urgent needs of families in the system (APHSA, 2005). Gira, Kessler, and Poetner (2005) have argued that not only is there a paucity of evidence on effective interventions in child welfare, but the evidence that is available is difficult to generalize because of the diversity of the client population. It should also be noted that evidence based treatment/intervention models do not specifically address the primary *case management* responsibilities of public child welfare agencies.

Evidence-based treatment programs

Nevertheless, there are a few *treatment* programs that have established a base of evidentiary support for their effectiveness to promote child welfare outcomes of safety, permanency, and well-being. One such program, Family Preservation Services, has been shown to significantly reduce the re-occurrence of child abuse and neglect and out of home placements for children (Walton, 1998). Various home visitation models (e.g., Duggan et al., 2004; Holton & Harding, 2007; Olds, 1997) have been used to prevent the initial occurrence and recidivism of child maltreatment as well. Although there is substantial evidence demonstrating the effectiveness of this approach for the primary prevention of child maltreatment (e.g., Gonzalez & MacMillan, 2008; Harder, 2005), there is conflicting evidence on the effectiveness of such approaches for key ASFA indicators such as repeat maltreatment. MacMillan et al. (2005) evaluated the effectiveness of a nurse home visiting program for disadvantaged parents, they did not find a significant impact on recidivism of child abuse/neglect.

In addition to these home-visiting approaches, Gershater-Molko, Lutzker, and Wesch (2002) evaluated a parent training program focused on health care, bonding and environmental safety, Project SafeCare, to prevent child maltreatment recidivism. Those who received the Project SafeCare services had significantly lower reports of child abuse and neglect than families in the comparison group. Another parent training approach, Parent–Child Interaction Therapy (PCIT), utilizes parent coaching and it has been shown that parents who receive PCIT are significantly less likely to abuse or neglect their children (Chaffin et al., 2004).

Evidence-based case management

Although there is some research on promising *treatment programs* to promote child safety and well-being, none of these studies has focused specifically on *case management strategies* or the casework practices of the entire public child welfare agency itself. Family Preservation Services are used for a targeted sub-group of child welfare clients to prevent out of home placements and are typically provided by staff from private providers outside the public child welfare agency. Programs such as home visitation, Project SafeCare, and Parent–Child Interaction Therapy are also outside treatment programs to which child welfare clients can be referred. Furthermore, there has been no systematic research conducted on other public child welfare practice models used in such states as Utah, Alabama, and New Jersey (National Resource Center for Organizational Improvement, 2008). Hence, while some treatment programs have demonstrated positive impacts on child welfare outcomes such as the prevention of recidivism and removal of children from their homes, they do not provide guidance to the field on best practice for assessment, case planning, and casework management for those families that are served by public child welfare workers to address the federally mandated outcomes.

Overview of the Solution Based Casework model

One practice model that has been developed for and tested within the public child welfare system is Solution-Based Casework. Solution-Based Casework (SBC) (Christensen & Todahl, 1998; Christensen, Todahl, & Barrett, 1999) is a child welfare practice model based on three theoretical foundations: family life cycle theory (Carter & McGoldrick, 1980), relapse prevention/CBT theory (Irvin, Bowers, Dunn, & Wang, 1999; Marlatt & Gordon, 1985; Parks & Marlatt, 1999), and solution-focused family therapy (Berg, 1994; DeShazer, 1988; Kelly & Berg, 2000). These theoretical foundations translate to the following assumptions of casework: (1) that full partnership with the family is a critical and vital goal for each and every family case, (2) that the partnership for protection should focus on the patterns of everyday life of the family, and (3) that solutions should target the prevention skills needed to reduce the risk in those everyday life situations. When applied to the child welfare population, a SBC assessment utilizes the family life cycle to frame and locate the "problem" in the difficult developmental challenges that create safety threats to the family in their everyday life (*supervising young children*, *keeping*

the house clean and safe, *teaching the children right from wrong*). SBC case planning organizes those challenges into efforts (specific plans of action) the whole family can work on (Family Level Objectives), and those efforts (plans) that certain individuals in the family need to work on (Individual Level Objectives) so that the family can address these challenges more successfully. These specific plans of action are not the typical service delivery plans that measure service compliance, but are behaviorally specific plans of action that are co-developed by the family, provider, and caseworker. These plans target needed skills in critical risk areas that can then be demonstrated, documented, and celebrated. Throughout assessment, case planning, and casework management, SBC builds on solution-focused tenets (see Berg, 1994; Christensen et al., 1999) that child welfare clients (1) need significant encouragement to combat discouragement, and that (2) they possess unnoticed and unrecognized skills that can be used in the anticipation and prevention of child maltreatment. Clients are assisted within a forward looking partnership that searches for exceptions to problems in everyday life and recreates or builds upon their social network with supportive others (Berg, 1994; DeShazer, 1991; O'Hanlon & Weiner-Davis, 1989).

Previous research on the SBC model

There have been several published studies on the effectiveness of the SBC model of practice. The purpose of the first study was to evaluate the implementation and short-term outcomes of SBC through a review of 148 child welfare cases (Antle, Barbee, Christensen, & Martin, 2008). This research found that SBC can be implemented across cases differing in type of maltreatment, co-morbid factors, and other demographic variables. Results indicated that workers were more actively involved in case planning and service acquisition for families when SBC was implemented. Families were significantly more compliant with casework requirements and achieved more case goals and objectives. The model was particularly effective for families with a history of chronic involvement with the child welfare system. The purpose of the second research study was to evaluate worker and client experiences with the SBC model. In-depth qualitative interviews were conducted with 12 workers and 8 clients in the public child welfare system (Antle, 2000; Martin, Barbee, Antle, Sar & Hanna, 2002). Workers identified challenges of the shift from a pathology-orientation to a solution-focused and strengths-based perspective, the importance of supervisory support, and the struggle to understand complex elements of the model. Clients reported positive experiences with workers who viewed them from a strengths-perspective and engaged them in a collaborative relationship.

A third study was used to develop and test a comprehensive theoretical model for training child welfare workers in the SBC model (Antle, Barbee, & van Zyl, 2008). The training was evaluated through an experimental-control group pre- and multiple-post test design with 72 supervisors and 331 case workers in public child welfare. Supervisors and workers in the experimental group participated in a 5-day training on skills for effective casework practice and federally mandated outcomes for child welfare. Subjects completed a number of standardized scales to measure the constructs in the model pre-training, immediately post-training, and 2 months post-training. The data were analyzed using structural equation modeling. Results indicated that individual learning readiness, supervisor support of learning, and knowledge gain were predictive of transfer of the SBC model.

A final study evaluated the impact of the SBC model on the prevention of child maltreatment recidivism among families involved with the public child welfare system (Antle, Barbee, Sullivan, & Christensen, 2010; van Zyl, Antle, & Barbee, 2010). In this research, cases were assigned to a SBC group or control group based upon degree of implementation of the SBC model. There were 339 cases in the SBC group and 421 cases in the control group tracked over a 6 month time period for recidivism referrals, or reports for subsequent maltreatment for cases with previously substantiated maltreatment. In addition to state level management data on recidivism referrals, surveys were also administered to examine individual and organizational mediators of model effectiveness. The data showed that there significantly fewer recidivism referrals for the SBC group than the control group, and the variables of learning readiness, team and organizational learning conditions were found to be mediators of this outcome.

Current research on Solution Based Casework

Previous research was helpful in establishing whether the model had potential to impact child welfare outcomes and in establishing the optimal training procedures for implementing the model in large state-wide agency settings. These studies did not, however, address whether or not the SBC practice model had an impact on the specific criteria used for assessing a state's capacity to promote positive outcomes for children and families being served in the child welfare system. The current study sought to address three key questions:

(1) What is the relationship between SBC use and performance on federal review items and outcomes?
(2) What are the relative contributions of SBC and other elements of casework to these outcomes?
(3) What are the most critical points in the child welfare casework process to use SBC in order to promote positive outcomes?

Method

Design

This study utilized a quasi-experimental design. For certain analyses, cases were assigned to a high adherence-SBC implementation group and a low adherence-SBC implementation group based upon their scores on a number of items from the public child welfare system's Continuous Quality Improvement tool.

Sample

The sample consisted of 4,559 public child welfare cases from the state of Kentucky. All cases that were selected for the target state's Continuous Quality Improvement (CQI) process during a 4 year time period (2004–2008) were used for this research. The CQI cases were randomly selected from all 9 service regions of the state on a monthly basis.

Variables and measurement

The key variables for this research included the use of SBC, as well as the outcomes of safety, permanency, and well-being. The use of *Solution-Based Casework* was measured using 33 items specific to SBC from the CQI review tool. These 33 items were originally developed by the practice model team and represented core elements of the SBC model. These items have previously been used in supervisor management processes and prior chart file review studies on the model (Antle et al., 2008). These items were related to the identification of the stage of family development, high-risk patterns of behavior, and the involvement of the family in the case planning process. This well-formulated plan and procedure was essential to ensure content validity (adequacy of sampling the items that represent core SBC components) in the initial stages of the project to ease the task of validation later. Adherence to SBC was calculated as a total percentage score, corresponding to the percentage of items for which the casework on the case met the evaluative criteria. In addition to the total SBC score, there were also sub-scale scores for intake/investigation, ongoing services, case planning, and case management. An example of an item from the intake/investigation sub-scale was "In the initial assessment, was the documentation of Individual Adult Patterns of Behavior, including strengths, thorough and rated correctly?" For the ongoing services sub-scale, a sample item included "In the ongoing assessment, was the documentation of Family Support or Systems of Support thorough and documented correctly?" A sample item for the case planning sub-scale was the following: "Was the individual/family, child/ren, and foster parents/relative/kinship engaged in the case planning and decision-making process?" Finally, the case management sub-scale included items such as "Was the progress or lack of progress toward achieving EACH objective (every family, individual and child level objective) documented in contacts?"

The outcome of safety was operationalized according to the federal definitions of Safety 1 and 2. Safety 1 refers to the protection of children from abuse and neglect and includes specific criteria such as timeliness of investigations and the prevention of recidivism. Safety 2 is defined as the maintenance of children in their own homes and includes services to prevent removal and risk of harm. The state child welfare agency of this study worked in collaboration with federal program officers to link items on the Continuous Quality Improvement (CQI) tool to the federal review items and outcomes of safety, permanency and well being. Therefore, for the purposes of this study, the CQI items linked to the federal definitions were used. Scores were reported as a percentage score, corresponding to the percentage of items for which the casework on the case met the evaluative criteria for these review items and outcomes.

The outcome of permanency was also operationalized according to the federal definitions of Permanency 1 and 2. Permanency 1 refers to children having permanency and stability in their living situations and includes elements of foster care, reunification, permanency goals, and adoption of children. Permanency 2 refers to the preservation of family relationships and connections such as proximity of placement and placement with siblings.

The outcome of well being was operationalized according to the federal definitions of Well-being 1, 2, and 3. Well-being 1 refers to enhancing families' abilities to meet the needs of their children through worker visits and involvement of the family in case planning. Well-being 2 refers to children receiving services to meet their educational needs, and Well-being 3 refers to children receiving services to meet their physical and mental health needs.

Procedure

These cases included in the sample were reviewed by independent, trained review specialists using the 178 item review tool. These review specialists were employees of the state child welfare agency whose primary responsibility was the collection and monitoring of quality improvement data. Specialists were hired from each region to review cases randomly selected from that region. However, they did not have personal knowledge of the caseworkers or cases that they were assigned to review. These specialists were aware that the data they collected was to be used in the Continuous Quality Improvement process, including the generation of regional reports with summary data on key process and outcome variables that could be used to identify training and other resource needs for the region. Prior to beginning their positions, reviewers were provided with intensive training through which their reliability in use of the CQI tool was established. The review tool contained items that measured both process and outcome elements in the child welfare case with possible ratings of "Yes,"

"No," or "Not Applicable." (The latter was utilized for sections of the review tool that did not fit the type of case, such as the application of out of home care items to cases were children were not removed from the home). The process elements were either assigned to the SBC adherence score or the non-SBC process variables, while the outcome elements were assigned to the safety, permanency, and well being outcomes per the guidance of the federal program officers who worked with the state in this study. There was no item overlap for the SBC factors and the safety, permanency, and well-being outcomes (no items appeared on both the SBC measure and the outcome measures). Hard copies of each case were reviewed by the independent review specialists and entered into an on-line data management system that was maintained by the first author on this manuscript. Data were downloaded by this on-line management system and analyzed per the following plan.

Data analysis

Correlation and regression analyses were conducted in order to address the following: (i) how do the factors derived from 33 items that represent SBC, selected from the CQI Review Instrument, correlate with the outcome related items, (ii) are the SBC factors strong predictors of outcomes, (iii) how do the SBC factors correlate with the other dimensions of the CQI Review Instrument, and (iv) are the SBC factors strong predictors of the CQI dimensions or factors. The last 2 questions attempt to identify the relationship of SBC with other factors in the CQI Review Instrument. In addition to these analyses, *t*-tests were conducted to analyze the difference in outcomes between high and low SBC adherence groups.

Criteria for high correlations and strong predictors. 'High correlations" were defined as those that were significant at the $p < 0.001$ level and with a Pearson correlation of $r > 0.40$. "Strong predictors" in linear regression models were defined as having a R square > 0.45, significant *t*-tests of each b coefficient, maximum centered leverage value and Cook's distance of less than 0.1, and the Variance Inflation Factors (VIF) should be <4.

Three other aspects were also considered in the regression analysis: skewed distributions, linearity and homoscedasticity. In the case reviews included in the sample and often found in practice, the majority of cases met CQI requirements. Consequently both dependent and independent variables were positively skewed. Square root transformations were conducted and resulted in distributions that were closer to normal. Partial regression plots between the response variable and the predictors were examined and nonlinearity was not a problem in any of the analyses. Mild homoscedasticity was observed in most of the residuals plots. The criteria for residual score distributions, as outlined above, was fairly conservative to compensate for the homoscedasticity problem.

Results

Analysis of the reliability of the instruments

Reliability of the 33 SBC items in the CQI Review Instrument. A principal component factor analysis with Varimax rotation on the 33 SBC items yielded 4 factors that corresponded almost completely with the 4 previously defined domains, with the exception of 2 items. [Two items in the *ongoing casework* subscale had slightly higher loadings on other domains. Both items correlated higher with *the ongoing casework* scale total score than with the total scale scores of the other factors they had high loadings on (item 42, 0.340 with *ongoing casework* and 0.316 with *case management*; item 51, 0.612 with *ongoing casework*, 0.549 with *case management*, and 0.577 with *case planning*). The intent of the 2 items relates to the *ongoing casework* factor, and the results of correlation analysis also support them being part of the *ongoing casework* factor.] Example items for each of the factors are: Factor 1—intake/investigation "Is the documentation of the Sequence of Events thorough and rated correctly?"; Factor 2—ongoing "Is the documentation of the Family Development Stages, including strengths, thorough and rated correctly?"; Factor 3—case planning "Does the case plan reflect the needs identified in the assessment to protect family members and prevent maltreatment?"; Factor 4—case management "Is the need for continued comprehensive services documented, at least monthly?" the Cronbach alpha coefficients of the four factors are high (intake/investigation 0.83), ongoing 0.96, case planning 0.98, and case management 0.92 and cumulatively they explained 84% of the variance. A corrected mean item-total correlation to get a coefficient of *content validity* was computed for each scale. Content validity coefficients of 0.60 and higher are usually seen as very good. Content validity of the 4 SBC scales are exceptional with coefficients ranging from 0.64 to 0.85.

Factors and the CQI Instrument. The CQI Review Instrument consisted of 5 main sections: targeted case management, intake/investigation, ongoing, adult protection, and out of home care. After removing the 33 SBC items, each of the 8 sections was factor analyzed separately using Principal Component Analysis and Varimax Rotation if more than 1 factor was extracted. The data structure did not merit an analysis of all the items simultaneously due to "Not Applicable" response options and subsequent low response rate on some questions. Two sections were excluded from the analysis after no factor could be extracted either due to insufficient focus in the section (APS and General Adult) or insufficient number of cases (Status Offenders Only). In addition 15 items were excluded in another section due to low case numbers. The 7 additional factors, beyond the SBC factors represented by 33 items, that were extracted represented 116 items out of a total of 151 or 77% of remaining items.

Table 1
Pearson correlation coefficients of Solution Based Casework factors with seven factors in the CQI Review Instrument.

Factors in the CQI Review Instrument	Solution Based Casework				
	Intake & investigation	Ongoing	Case planning	Case management	Mean
Factor 1 –TCM	0.084[**]	0.269[**]	0.300[**]	**0.526[**]**	0.295
Factor 2 –intake & investigation	**0.644[**]**	0.263[**]	0.237[**]	0.264[**]	0.352
Factor 3 – ongoing	0.212[**]	0.734[**]	**0.743[**]**	0.707[**]	0.599
Factor 4 – out of home care: child focused	0.264[**]	0.396[**]	0.457[**]	**0.510[**]**	0.407
Factor 5 – out of home care: permanency issues	0.197[**]	0.429[**]	0.464[**]	**0.490[**]**	0.395
Factor 6 – out of home care: parent involvement	0.191[**]	0.374[**]	0.401[**]	**0.466[**]**	0.358
Factor 7 – out of home care: objectives & tasks	0.255[**]	0.508[**]	0.464[**]	**0.537[**]**	0.441
Mean	0.264	0.425	0.438	0.500	0.407

Bold values represent the highest correlation coefficient in each row.
[**] Correlation is significant at the 0.01 level (2-tailed).

Correlations between the 4 SBC factors and the seven other CQI factors extracted were all significant at the .001 level. The highest correlation between any 1 of the SBC factors and the 7 CQI factors ranged from 0.466 to 0.743 (see Table 1). In other words at least 1 SBC factor correlated highly (greater than 0.465) with a CQI factor. Factor 5, out of home care-permanency issues (0.490) and Factor 6, out of home care-parent involvement (0.466) highest correlation were slightly under the 0.50 mark, but still higher than the target correlation of 0.40 set out in the criteria for high correlations. Factor 1, targeted case management, had the lowest mean correlation of 0.294. Intake and investigation correlated highly with Factor 2, the corresponding domain in the CQI Instrument. Mean correlations for the other 3 factors were 0.425, 0.438 and 0.500. In conclusion, SBC correlates significantly and highly with all the outcome variables as well as with all factors contained in the CQI.

Regression analysis was conducted to answer the question if SBC factors are predictors of the different factors or constructs contained in the CQI Review Instrument. The factor analysis assisted in identifying domains contained in the CQI. If the 4 SBC factors are predictive of all the domains (factors) extracted from the CQI Review Instrument, it would mean that SBC accounts for the spectrum of expectations represented by the CQI Review Instrument. From Table 2 it can be concluded that the 4 SBC factors, or combinations of these factors, are predictors of factors in the CQI Review Instrument. All models of predictions were significant at the .001 level and the significance explained ranged from moderate (22%) to very high (78%). SBC was least predictive of the factor representing the fewest number of items (4) on the CQI, and most predictive of the factor with the most number (55) of items.

Correlations of SBC factors with outcomes

All Pearson correlations between the 4 SBC factors and the ten outcome scores were significant at the .001 level. As previously stated, there was no item overlap for the SBC factors and the safety, permanency, and well-being outcomes (no items appeared on both the SBC measure and the outcome measures). The highest correlation between any 1 of the 4 SBC factors and each of the 10 outcomes ranged from 0.524 and 0.756 (see Table 3). This means that at least 1 category of the SBC correlated significantly and highly with an outcome. Safety correlated highly with intake and investigation, and the mean correlations for all 3 other SBC factors were very similar (0.531, 0.530, and 0.525).

Regression models for safety, permanency and well-being

A standard multiple regression was performed between the SBC factors and the CSFR outcome measures. No cases had missing data. From Table 4, it is clear that regression models were computed that predicted overall safety, permanency, and well-being from the 4 SBC factors significantly at the .001 level, and that all the criteria identified for strong predictors were met. The variance explained by the models ranged from 50% to 64%. Different factors of SBC contributed differently to the outcomes, with SBC-intake and investigation being a major factor in predicting overall safety, SBC-case management and SBC-case planning dominant factors in overall permanency prediction, while SBC-ongoing, SBC-case management and SBC-case planning, all made substantial contributions to predicting overall well-being scores. At the subscale level, all models were highly significant and all the criteria for strong predictors were met, except in 2 cases for the percentage variance explained. Safety subscales were strongly predicted by SBC factors, and variance explained were 47% and 57% respectively. The same was true for Permanency 1 with 55% variance explained, but only 30% of variance was explained by 3 of the SBC factors, with SBC-ongoing not contributing to the prediction. Well-being 1 is very well predicted by SBC factors with 73% of variance explained. The model for Well-being 3 explained 47% of the variance by three predictors, SBC-ongoing, SBC-case management and SBC-case planning. The same predictors were included in the model for Well-being 2 and 36% of variance was explained. In conclusion, the 4 SBC factors were found to be strong predictors of overall safety, permanency, and well-being and combinations of the SBC factors also adequately predicted Safety 1, Safety 2, Permanency 1, Permanency 2, Well-being 1, Well-being 2, and Well-being 3.

Table 2

Regression model statistics using SBC factors to predict factors in the CQI Review Instrument.

Dependent variable	R^2	$F(p<)$	Predictors	B (unstandardized)	Beta	$t(p<)$	95% Confidence Interval for B		VIF	Maximum centered leverage value	Cook's distance
							Lower bound	Upper bound			
Factor 1 – targeted case management $n=3043$	0.221	860.3 (.001)	(Constant)	0.558		48.8 (.001)	0.535	0.580		0.003	.001
			SBC CM	0.394	0.470	29.3 (.001)	0.368	0.420	1.0		
Factor 2 – intake & investigation $n=2659$	0.546	1062 (.001)	(Constant)	0.395		41.0 (.001)	0.376	0.414		0.013	.001
			SBC I&I	0.501	0.704	53.1 (.001)	0.482	0.519	1.0		
			SBC CP	0.020	0.051	3.2 (.001)	0.008	0.032	1.5		
			SBC CM	0.049	0.104	6.5 (.001)	0.034	0.064	1.5		
Factor 3 – ongoing $n=3252$	0.793	4137 (.001)	(Constant)	0.292		53.6 (.001)	0.281	0.303		0.007	.001
			SBC ongoing	0.279	0.423	42.2 (.001)	0.266	0.291	1.6		
			SBC CP	0.169	0.293	27.8 (.001)	0.157	0.181	1.7		
			SBC CM	0.246	0.352	35.2 (.001)	0.232	0.260	1.6		
Factor 4 – out of home care (child focused) $n=871$	0.319	135.6 (.001)	(Constant)	0.502		20.0 (.001)	0.453	0.552		0.039	.003
			SBC I&I	0.137	0.164	5.7 (.001)	0.090	0.185	1.1		
			SBC CP	0.135	0.259	7.9 (.001)	0.102	0.169	1.4		
			SBC CM	0.216	0.322	9.7 (.001)	0.172	0.260	1.4		
Factor 5 – out of home care (permanency issues) $n=1365$	0.331	224.9 (.001)	(Constant)	0.347		18.1 (.001)	0.309	0.384		0.015	.001
			SBC ongoing	0.157	0.201	7.3 (.001)	0.114	0.199	1.6		
			SBC CP	0.124	0.172	6.1 (.001)	0.084	0.163	1.6		
			SBC CM	0.286	0.322	11.9 (.001)	0.239	0.333	1.5		
Factor 6 – out of home care (parent involvement) $n=1354$	0.263	160.8 (.001)	(Constant)	0.695		60.9 (.001)	0.672	0.717		0.016	.002
			SBC ongoing	0.068	0.155	5.3 (.001)	0.043	0.093	1.6		
			SBC CP	0.044	0.108	3.6 (.001)	0.020	0.068	1.6		
			SBC CM	0.174	0.344	12.1 (.001)	0.146	0.202	1.5		
Factor 7 – out of home care: objectives & tasks $n=864$	0.487	272.2 (.001)	(Constant)	0.274		9.3 (.001)	0.216	0.331		0.041	.003
			SBC I&I	0.140	0.124	5.0 (.001)	0.085	0.196	1.1		
			SBC CP	0.331	0.477	16.6 (.001)	0.292	0.370	1.4		
			SBC CM	0.242	0.272	9.4 (.001)	0.192	0.292	1.4		

Table 3
Pearson correlation coefficients of Solution Based Casework factors with outcome measures.

Outcomes	Solution Based Casework				
	Intake & investigation	Ongoing	Case planning	Case management	Mean
Safety 1	**0.564**[**]	0.464[**]	0.350[**]	0.332[**]	0.428
Safety 2	**0.609**[**]	0.552[**]	0.418[**]	0.452[**]	0.508
Safety total	**0.620**[**]	0.552[**]	0.417[**]	0.424[**]	0.503
Permanency 1	0.163[**]	0.514[**]	0.559[**]	**0.632**[**]	0.467
Permanency 2	0.225[**]	0.425[**]	0.507[**]	**0.527**[**]	0.421
Permanency total	0.260[**]	0.486[**]	0.569[**]	**0.596**[**]	0.478
Well-being 1	0.265[**]	0.608[**]	0.686[**]	**0.756**[**]	0.579
Well-being 2	0.175[**]	**0.524**[**]	0.520[**]	0.427[**]	0.412
Well-being 3	0.169[**]	0.543[**]	**0.590**[**]	0.486[**]	0.447
Well-being total	0.228[**]	0.643[**]	**0.680**[**]	0.618[**]	0.542
Mean	0.328	0.531	0.530	0.525	0.478

Bold values represent the highest correlation coefficient in each row.
[**] Correlation is significant at the 0.01 level (2-tailed).

t-Tests

Safety. There was a significant difference between high adherence and low adherence SBC groups for all federal outcomes. There was a significant difference between high adherence and low adherence SBC groups for Safety 1, $t(4417) = -20.20$, $p < .0001$. For Safety 1, the federal goal was 83.7%. The mean percentage score for low adherence SBC group was 76.50% and the mean percentage score for the high adherence SBC group was 89.98% (exceeding the federal standard). There was a significant difference between high adherence and low adherence SBC groups for Safety 2, $t(4405) = -23.40$, $p < .0001$. For Safety 2, the federal goal was 89%. The mean percentage score for the low adherence SBC group was 80.66%, and the mean percentage score for the high adherence SBC group was 95.53%. See Fig. 1 for means by group compared to federal standard for all outcomes.

Permanency. There was a significant difference between high adherence and low adherence SBC groups for Permanency 1, $t(3513) = -24.62$, $p < .0001$. For Permanency 1, the federal goal was 32%. The mean percentage score for the low adherence SBC group was 70.07% and the mean percentage score for the high adherence SBC group was 92.72%. There was a significant difference between high adherence and low adherence SBC groups for Permanency 2, $t(1533) = -14.54$, $p < .0001$. For Permanency 2, the federal goal was 74%. The mean for the low adherence SBC group was 66.89% and the mean for the high adherence SBC group was 89.57%.

Well-being. There was a significant difference between high adherence and low adherence SBC groups for Well-being 1, $t(4336) = -35.22$, $p < .0001$. For Well-being 1, the federal goal was 67%. The mean for the low adherence SBC group was 66.01% and the mean for the high adherence SBC group was 94.29%. There was a significant difference between high adherence and low adherence SBC groups for Well-being 2, $t(2988) = -19.5$, $p < .0001$. For Well-being 2, the federal goal was not established in the reports. The mean for the low adherence SBC group was 61.59% and the mean for the high adherence SBC group was 90.58%. There is a significant difference between high adherence and low adherence SBC groups for Well-being 3, $t(3467) = -23.93$, $p < .0001$. For Well-being 3, the federal goal was 78%. The mean for the low adherence SBC group was 60.38% and the mean for the high adherence SBC group was 88.81%.
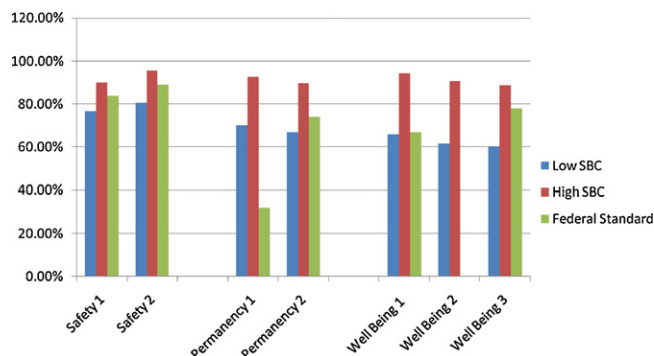

Fig. 1. Mean outcome scores by use of SBC compared to federal standard.

Table 4
Regression model statistics using SBC factors to predict CQI outcomes.

Dependent variable	R^2	$F (p<)$	Predictors	B (unstandardized)	Beta	t (Sig.)	95% Confidence Interval for B		VIF	Maximum centered leverage value	Cook's distance
							Lower bound	Upper bound			
Safety (combined safety score) $n = 2472$	0.564	798.4 (.001)	(Constant)	0.642		51.1 (.001)	0.618	0.665		0.017	.001
			SBC intake & investigation (I&I)	0.505	0.592	43.3 (.001)	0.482	0.528	1.1		
			SBC ongoing	0.104	0.189	11.2 (.001)	0.085	0.122	1.6		
			SBC case planning (CP)	0.029	0.062	3.5 (.001)	0.013	0.046	1.8		
			SBC case management (CM)	0.096	0.166	9.9 (.001)	0.077	0.116	1.6		
Permanency (combined permanency score) $n = 902$	0.498	222.5 (.001)	(Constant)	0.668		25.2 (.001)	0.616	0.721		0.017	.002
			SBC I&I	0.107	0.102	4.1 (.001)	0.056	0.158	1.1		
			SBC ongoing	0.049	0.070	2.3 (.001)	0.008	0.091	1.6		
			SBC CP	0.195	0.303	10.3 (.001)	0.157	0.232	1.6		
			SBC CM	0.350	0.418	14.2 (.001)	0.302	0.399	1.6		
Well-being (combined well-being score) $n = 2134$	0.639	941.7 (.001)	(Constant)	0.500		20.0 (.001)	0.451	0.549		0.19	.001
			SBC I&I	0.098	0.053	4.0 (.001)	0.050	0.147	1.1		
			SBC ongoing	0.0376	0.323	19.4 (.001)	0.338	0.414	1.6		
			SBC CP	0.330	0.319	18.4 (.001)	0.295	0.365	1.8		
			SBC CM	0.377	0.299	18.1 (.001)	0.337	0.418	1.6		

Discussion

This research found that the use of the SBC model is associated with significantly better scores on all 23 CFSR review items and the 7 federal outcomes of Safety 1 and 2, Permanency 1 and 2, and Well-being 1, 2, and 3. As the SBC adherence implementation score for cases increased, the compliance score for the CFSR review items and outcomes also increased. There were differential effects of SBC on outcomes based upon the stage of the case. The strongest SBC predictors of safety outcomes were the SBC intake/investigation skills. On the contrary, the strongest SBC predictors of permanency outcomes were case management and case planning skills. Lastly, SBC skills of case planning, case management, and ongoing casework were important for well-being outcomes. The SBC scales account for very high percentages of the variance in these outcomes.

There were also significant group differences in each of the 7 outcomes between high adherence and low adherence SBC implementation groups. When cases were assigned to these high adherence and low adherence implementation groups based upon their score on the 33 SBC items from the CQI review tool, significant group differences in each of the federal outcomes were detected. The higher degree of use of the SBC model (across all stages of the case) results in exceeding federal standards for each of the key outcomes of safety, permanency, and well being. When the model is not used or used to a lesser degree, cases fail to meet these federal standards for most outcomes.

Strengths and limitations

There were several strengths of the current research, including the large sample size, use of federal definitions/standards for review, and a clearly operationalized practice model with reliable and valid measures of implementation. The sample size of 4,559 cases is quite large compared to other studies on practice model effectiveness for child welfare. Most research studies of this magnitude rely exclusively on administrative data instead of direct chart file review of cases. These chart file reviews of cases included the collection of data along 178 dimensions (items). Another strength of the study was the use of federal definitions and from child welfare CFSR processes and ASFA outcomes. Other research on promising practice models to promote child welfare outcomes has not relied upon these federal definitions, but instead has asserted study-specific definitions of child safety and well being (e.g., Chaffin et al., 2004; DePanfilis & Dubowitz, 2005). Lastly, this study assesses a clearly operationalized practice model with reliable/valid measures of adherence to implementation of the practice model. The measurement of adherence to the SBC practice model within this study utilizes comparable criteria to those set forth in previous research on the model (e.g., see Antle et al., 2008). Data analyses confirmed the factorial soundness, content validity and reliability of the SBC review criteria from the CQI tool.

Despite these strengths, there were also several limitations of this research. There was no random assignment to conditions. However, this was managed by focusing on the level of adherence to implementing the SBC practice model which accounted for worker differences in implementation. While there had been statewide training of the SBC model, this study demonstrates that there was much variability in the extent of fidelity to the model and this variability had a significant effect on outcomes. This variability in adherence may be due to differences in training quality and reinforcement, as well as middle management support of the model, which have been shown to be related to transfer of the model (Antle et al., 2010). There was also limited data on case characteristics, such as race and other family factors, that may have influenced outcomes, but because the cases were randomly chosen each month for a period of 4 years, it is unlikely that there would be great differences in case characteristics across those that were high versus low adherents to the SBC practice model.

Future research

Future research should address the aforementioned limitations. There is a need to conduct a randomized controlled trial on the SBC model in child welfare. Yet, this type of study is difficult in a state where implementation of the practice model is statewide. Other states have begun to explore the use of the model and might offer appropriate venues for a randomized controlled trial to contribute to the growing body of evidence on SBC, yet even in such situations the research may be complicated by factors related to model support such as training, information systems, policy and procedures, all elements currently considered critical to the definition of a casework practice model and its successful implementation (Barbee, Christensen, Antle, Wandersman, & Cahn, 2011).

There is also the possibility to use the current data set to identify the most critical elements of the SBC model to promote positive outcomes. While this research established that the use of the model is associated with positive outcomes and this association varies based upon the stage of casework, there is a need to identify which specific SBC practice skills at what dosage are most predictive of child safety, permanency, and well being. Other research can continue to explore worker and case variables that mediate outcomes of the SBC model. Previous research by this team found that SBC can be implemented across types of maltreatment, racial groups, and with various comorbid factors (Antle et al., 2008). However, there is a need to explore differences in SBC outcomes based upon these characteristics, particularly in light of the growing emphasis of the field of racial disproportionality and disparate outcomes in child welfare (e.g., Harris & Courtney, 2003; Hill, 2006). Other past research by this team has identified the impact of worker learning readiness, organizational support of learning, and training methods on implementation of the model (Antle et al., 2008, 2010). Future research could explore differences in

SBC outcomes based upon supervisor and worker characteristics. Such research would provide additional direction for the field as child welfare systems consider this theoretically and empirically based practice model.

Implications

There are numerous implications of this study, including the need to operationalize practice models, the challenges of fully implementing an evidence-based practice model, and the potential for improving child welfare services through outcome accountability (see also Barbee et al., 2011). This study is the first to establish that an operationalized casework practice model can be used to achieve federal outcomes in the areas of safety, well-being and permanency.

Practice models need operational specificity. A state agency's statement of service philosophy, or principles of casework, is not specific enough to be considered a practice model. If these practice principles are not operationalized, they cannot be measured for effectiveness, much of the early development of Solution Based Casework was focused on operationalizing the model in an existing public child welfare system. Operationalization of a practice model encompasses the agency's standards of practice, policy and procedures. This specificity affects agency forms, case data collection, time-lines, progress reporting, collateral contacts, community engagement, and management strategies. Because there are so many competing needs in large child welfare agencies, the practice model needs enough operational definition that when decisions need to be made that might affect the best practice of the model, agency personnel can look to the model for fidelity of practice (Barbee et al., 2011). As states consider how to achieve the federal outcome standards, this study lends support to efforts that operational specificity of their practice so that its effectiveness can be measured.

Challenges to fully implementing an evidence based practice model. At the time that data collection for this study began, Solution Based Casework had been in various stages of implementation for almost a decade. Structural changes in policy, training, information systems, practice procedures, supervisor mentoring and quality assurance all took time to work their way through the system. The authors do not see this as unique to this implementation, but generic to large system change. Despite the time already invested in the model, these data demonstrate there is more work to do in this service delivery system to achieve higher rates of model transfer. It is hoped that the lessons learned in this study, and the previous studies of SBC, assist other large and small systems in their efforts to achieve good outcomes in a timely manner.

The potential for improving child welfare services through outcome accountability. The use of quality assurance or improvement data such as that utilized in this study offers the opportunity to promote "best practice" and associated positive outcomes for families involved with the public child welfare system. This type of quality assurance data is gathered by most state child welfare agencies and can be utilized to inform supervision, adherence to a practice model such as Solution Based Casework, if one is present in the system, and a focus on federal outcomes that are to frame work with families.

In summary, this study addresses an important gap in the child welfare literature on the impact of an operationalized model of casework practice (Solution Based Casework). Given the significant concern in the field about improving child welfare services as measured through the CFSR process, there was a need to assess the impact of a practice model on these outcomes. This study provides data to suggest the positive impact of Solution Based Casework on meeting the federal CFSR standards for safety, well-being, and permanency and describes a number of practice implications for the field.

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