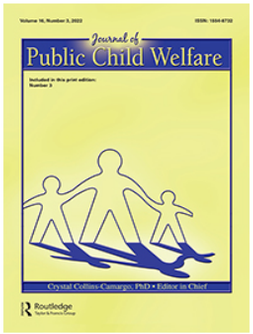

Journal of Public Child Welfare

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/wpcw20

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To cite this article: Ignacio A. Navarro, Brad Richardson, Jerry Endres, Rui Ling, Zuleima Arevalo & Scott McGrath (2022): STRENGTHS-BASED CASE MANAGEMENT, Journal of Public Child Welfare, DOI: 10.1080/15548732.2022.2085841

To link to this article: https://doi.org/10.1080/15548732.2022.2085841

JOURNAL OF PUBLIC CHILD WELFARE
https://doi.org/10.1080/15548732.2022.2085841

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STRENGTHS-BASED CASE MANAGEMENT

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ABSTRACT

Parenting education programs (PEP) are an important and proven intervention strategy in preventing child abuse and neglect. While the literature on the efficacy of PEP is robust, there is still no consensus on the conditions that make some implementations of PEP more successful than others. This paper provides evidence of the impact of implementing the Nurturing Parenting Program (NPP), combined with the Family Development Matrix (FDM). Using a Pre-Post comparison design, data from the First 5 San Bernardino program were analyzed for the years 2012–2017. NPP outcome measures from the Adult-Adolescent Parenting Inventory (AAPI) improved substantially after the FDM was implemented.

ARTICLE HISTORY
Received 7 January 2022
Revised 28 April 2022
Accepted 12 May 2022

KEYWORDS
Parenting education programs; Nurturing Parenting Program (NPP); Family Development Matrix (FDM); child abuse and neglect; public child welfare; family support programs

Introduction

Child maltreatment, defined as physical, sexual, or emotional abuse or neglect children under 18 years old, is a significant social concern (Sethi et al., 2018; Stoltzfus, 2009). Research consistently shows that maltreatment and trauma contribute greatly to child morbidity and mortality and have negative impacts on physical, behavioral, and psychological health (Alink, Cicchetti, Kim, & Rogosch, 2012; Gilbert et al., 2009; Jonson-Reid, Kohl, & Drake, 2012).

To prevent or reduce child maltreatment, many intervention components have been proposed and developed over the years, such as cognitive behavioral therapy, home visitation, and parent training (Barnet, Liu, DeVoe, Alperovitz-Bichell, & Duggan, 2007; Berzin, Cohen, Thomas, & Dawson, 2008; Branco, Altafim, & Linhares, 2021; van der Put, Assink, Gubbels, & Boekhout van Solinge, 2018). Parent Education (PE) is an important component in the set of interventions designed to prevent or respond to child maltreatment, which was recognized as a core service by the Prevention and Treatment Act (CAPTA) in the prevention of child maltreatment (Stoltzfus, 2009). The National Academy of Science, Engineering and Medicine (NASEM) (2016) identifies five elements that are

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Supplemental data for this article can be accessed online at https://doi.org/10.1080/15548732.2022.2085841.

correlated with successful implementation of PE interventions: "treating parents as partners with providers, tailoring interventions to the needs of both parents and children, integrating services within and across agencies in a collaborative manner, providing peer support and culturally relevant curricula, focusing on trauma-informed services and practices, and involving fathers." The consensus on the merits of existing research studies support the positive outcomes of PE as interventions to prevent child maltreatment (Chen & Chan, 2016; Pisani & Martins, 2016). A meta-analysis that included 37 studies shows that parenting program reduced self-reported child maltreatment reports and enhanced protective factors to prevent maltreatment in various income level areas (Chen & Chan, 2016). Another review study that included 23 studies shows that parenting educational programing is important to prevent child maltreatment (Pisani & Martins, 2016).

While research suggests that PE is effective in general (Chen & Chan, 2016; van der Put et al., 2018), there is no consensus on how to best implement PE programs using the guidelines identified by NASEM (2016), how to increase parent engagement, or how to combine PE with other evidence-based interventions. This paper contributes to the PE practice literature by documenting the implementation of an evidence-based PE intervention (Nurturing Parenting Programs®) combined with strength-based case management using the Family Development Matrix® (FDM) system in San Bernardino County, CA, for families with children 0–5 (Endres, Navarro, & Richardson, 2015; Matrix Outcomes Model, 2022a).

This paper is organized as a discussion of the study setting, the nature of the intervention using Nurturing Parenting Program (NPP), and the FDM in the methods section. It also includes a procedure that describes the implementation of First 5 San Bernardino where NPP and FDM were tested using pre-post design analyses for this study. The results section presents the data analysis of participant change in parenting knowledge and attitudes as measured by the Adult-Adolescent Parenting Inventory before and after the implementation of the FDM. The discussion section offers a discussion of results, and the last section offers conclusions and implications for practice.

Methods

Study setting

The county of San Bernardino is in the southwestern part of California. The county's population is 54% Hispanic or Latino (of all races), 27% White, 8% Black or African American, and 7% Asian (of non-Hispanic or Latino origin). With an estimated population of 2.1 million, the county exhibits wide income disparities. Cities closer to the Los Angeles metropolitan area tend to have higher incomes and lower percentages of their population below the poverty

level compared to cities in the high desert area, where some cities experience 35% living below the poverty level compared to the county-wide poverty level of 13.6%.[1]

The Children and Families Commission for San Bernardino County, also known as First 5 San Bernardino (F5SB), was created in 1998 following the passage of California's Children and Families Act (Proposition 10) (Endres et al., 2015; Matrix Outcomes Model, 2022a). F5SB's mission is to support and enhance the health and early development of children ages 0–5, their families, and communities. To achieve this mission F5SB has parenting education as a central pillar of its programs. Families are referred to F5SB parenting education programs by the County's Child Protective Services and schools, which accept walk-in clients. To provide these services, F5SB contracts the services of local agencies to implement interventions that advance its mission. In the case of parenting education programs, each contracting agency is required to implement a Nurturing Parenting Curriculum. When F5SB adopted Nurturing Parenting as its core parenting education intervention in 2012, it did not require agencies contracted to implement NPP to include a case-management framework. That changed in 2015 when a decision was made in recognition of the fact that families with parenting education needs experience many other family needs. Needs such as economic stability, access to services, emotional stability, and home environment conditions, in addition to parental readiness and knowledge are provided through a more comprehensive case management approach using the FDM. Beginning in 2015, agencies were required to include the Family Development Matrix for case management in their implementation of parenting education services.

The change in practice to add the FDM provided a convenient opportunity for conducting a pre-post analysis that assessed the change in family outcomes resulting from the addition of the FDM with all other factors held constant. Measures on the AAPI by the Nurturing Parenting Program intervention were used for analysis comparing the outcomes before and after implementation of the FDM.

Nurturing Parenting Programs

Developed in 1983, Nurturing Parenting Programs (NPP) is listed with the California Evidence-Based Clearinghouse (CEBC) for Child Welfare with a rating of "3." (Bavolek & Dellinger-Bavolek, 2009). The CEBC rating of 3 is described as a program supported by Promising Research Evidence.[2] Under the NPP intervention guidance for children 0–5, both parents and their children participate in home-based, group-based, or combination group-based and home-based program models. The curriculum is divided into competency-based lessons designed to enhance parental learning and mastery of skills that address parent-child attachment issues, abusive disciplinary

practices, neglect of children's basic needs, lack of supervision, and oppression of children's power and independence. Specifically, the curriculum and activities are centered around 5 dimensions of parenting knowledge and attitudes (Bavolek & Dellinger-Bavolek, 2009):

(1) Appropriate expectations of children given their age and developmental stage
(2) Empathy toward children's needs
(3) Beliefs in the use of corporal punishment
(4) Appropriate parent-child family roles
(5) Respect for children's power and independence.

NPP can be implemented with home visiting, group-based settings, or both. F5SB agencies implement NPP using a group-based model where families meet weekly for 2.5-hour sessions over a period of 16–27 weeks depending on client's needs. Before clients begin NPP sessions, they complete a baseline assessment of knowledge and attitudes. This assessment, known as the Adult-Adolescent Parenting Inventory (AAPI), is also administered to families during their last session of NPP curriculum to evaluate increased parenting skills in the five domains covered by the intervention.

The Family Development Matrix

Created in 2005, the Family Development Matrix (FDM) is an agency information and support tool that includes a strength-based family assessment and case management model for community-based organization (Endres et al., 2015; Matrix Outcomes Model, 2022a). The FDM assessment tool model rests on five pillars: the collaborative design teams, the protocol, the empowerment plan, the indicators, and the program support services. Each of them is described in detail below (Endres et al., 2015).

Building a Family Development Matrix design team

Conceived as a model where local design and community ownership (Wessells, 2015) is essential for sharing decisions and resources. Each FDM community collaborative is a team building process across several family support agencies (Linden, 2002; Melaville & Blank, 1994; Poulin, 2000; Rosenthal & Mizrahi, 1994). Before implementing the FDM, each collaborative design team is trained to a) use the FDM family assessment and outcomes tool for family assessment and case management; b) design a shared outcomes model to improve program support services with families in their community; and c) evaluate outcome results for family, agency, and funder reporting. An initial step is to develop a "collaborative prevention philosophy" with a vision, shared values, and agency

leadership roles (Matrix Outcomes Model, 2022a). Their collaborative prevention plan includes team objectives to address cross-agency challenges and an action plan to implement the FDM shared outcome measures.

Collaboratives are organized by a collaborative coordinator that communicates with agency coordinators. The FDM coordinators' responsibility is maintaining their participation through all elements of a shared outcomes design process. These include a) selection of family outcome indicators specific to their agencies in the collaborative, b) aligning program support services to each of the indicators, c) maintaining a practice protocol and agreeing on client coding for data tracking, d) maintaining staff training, and e) monitoring data integrity and analyzing data reports. SBF5 organized its collaborative in early 2015. During this process SBF5, and its providers agreed on a set of 19 child well-being indicators that agencies would implement in their practice protocol.

The FDM's practice protocol

The indicators of well-being chosen by a collaborative are used by family case workers in community-based organizations to conduct assessments of family conditions. Family case workers are trained to conduct an assessment with the family member(s) to a) identify the status level within each indicator that best represents their situation; b) identify family strengths and issues of concern using the computer programmed "visit summary"; c) make decisions together for interventions and agency support services; d) create a family – directed empowerment plan; e) then use the Matrix database to track family and worker activity for case management; and f) subsequently, evaluate family progress for reporting.

The FDM practice protocol specifically assesses the building of a family/worker relationship as part of the discussions related to each of the core sets of indicators. When the data are entered, the Matrix database displays a visit summary of assessment scores in two parts – areas of strengths and issues for concern based on the scoring of in-crisis and at-risk compared to stable and safe/self-sufficient scores. Following the strength-based assessment, agency-based programs deliver local services that may include parenting services, services to promote father involvement, trauma therapy, etc. Services are selected based on the family assessment in consultation with the family to determine which services are most appropriate and desirable. In practice, a discussion takes place about what is working well and what is not working for the family and how family knowledge, skills, and abilities for improvement can best be supported. This information is integrated into the family empowerment plan.

The family empowerment plan

The Family Empowerment Plan outlines goals for improvement and actions that will be taken. The case worker assists the family in assessing its status on the indicators. In consultation, the worker and family identify indicators of

strength and those where improvement is needed. In this manner, the strengths on some indicators provide a foundation for discussion and instilling confidence that similar strengths can be developed in other areas currently identified as "in need." Using the indicators to guide the focus of actions to be taken, the integration of evidence-based interventions and local programs and services forms the basis for assistance in achieving family-directed goals with mutually agreed upon roles and activities for family members and the case worker. This approach is thoroughly described in the protocol and is further supported by a results report showing indicators at each assessment for review and further planning. In this manner, the case worker and family determine how well and in what way progress is being made from baseline assessment (conducted within the first 30 days) through each quarterly assessment throughout participation of the family. "Each of these steps in developing the empowerment plan were based on evidence-based practices (e.g., Healthy Families America; North Carolina Family Assessment System/FRIENDS, ZTT Infant and Toddler Court Team; Life Skill Progression, and Nurse Family Partnership) that include a case management component in home visitation" (Casanueva, Harris, Carr, Burfiend, & Smith, 2019; Dunst, 2002; Kirk, 1998; Olds, Kitzman, Cole, & Robinson, 1997; Olds et al., 2002; Wollesen & Peifer, 2006).

The core indicators

At the heart of the FDM are the critical life domains measured as indicators. As stated above, the F5SB collaborative agreed on 19 indicators (appendix A) in four areas of family wellbeing to guide the family assessment and empowerment plan (Matrix Outcomes Model, 2022b). During a family assessment, a family's score in each of the indicators responds to a negotiated agreement through discussion between the case worker/advocate and the family being served. Each indicator has status levels with definitional statements that describe conditions or behaviors. Through discussion, the score that best describes the current family situation of the four status levels is chosen. Each indicator has four status levels:

Safe/Self-Sufficient status level. Indicates that a family is largely able to address its own immediate needs and to plan and act on its future. Long-term maintenance at this level is a goal. In this example, the family is generally secure as a result of its own efforts and has a clear vision of its goals. Motivation comes from within the family and any interventions are to maintain their level of achievement.

Stable status level. The family has begun to plan and use internal resources. This status level is selected when the family is no longer in danger and is ready to change as needed to be more secure and safe in the specific indicator area. Planning occurs for the family's future. Supportive services are provided as needed to assist the family in implementing their plans.

At-Risk. The family is secure from immediate disaster, and with planning and use of external resources and with initial action, the family can continue an upward trend. Continuing intervention and program support provide a platform on which the family can build its plans and act to improve its circumstances.

In-Crisis. Reflects a family in survival mode. Resources are dangerously inadequate, and the family does not have the will or the breathing room to plan for the future. Family systems may have collapsed or are in immediate danger of collapse. Strong outside intervention and program resources are often required to move the family to at least the "at-risk" level and higher.

Measures

The Adult-Adolescent Parenting Inventory (AAPI)

The AAPI was originally developed in 1979 and was designed to assess parenting and child rearing attitudes in adult, adolescent, and pre-parent populations (Assessing Parenting, 2017). The AAPI has been updated and its current version (2.1) has been tested for validity and reliability (Assessing Parenting, 2017). The AAPI has 40 items that measure the different dimensions (or constructs) of parenting taught in the NPP curriculum. Responses in each of the AAPI's 40 items are translated into Sten scores (1–10 scales) that represent levels of risk in each of the 5 constructs. Families with scores of 1–3 are considered to be at a high risk, families with scores between 4 and 7 are considered at medium risk, and families with scores between 8 and 10 are considered at low risk. The APPI is designed to be administered twice when used in conjunction with a parent education intervention: the first (Form A) to be administered before the intervention is implemented, and the second (Form B) to be administered after the intervention has been completed.

Procedure: implementation of the FDM and NPP in San Bernardino

F5SB began its implementation of the FDM in 2015. The collaborative matrix design team agreed on its practice protocols, indicators, referrals processes, and evaluation and data protocols in early months of the implementation year. F5SB chose that specific year because it coincided with a new 3-year contract cycle with service providing agencies. By the time F5SB re-negotiated contracts with agencies, it required that they implement the FDM as a companion program to NPP. The trainings with agencies that agreed the new contract terms took place in late spring and implementation began in June 2015.

While the requirement of FDM implementation did not include any changes to the way NPP was implemented, it did require that all families that received NPP classes receive an assessment using the 19 FDM indicators

and case management using the FDM data system. As before FDM implementation, all NPP providers were expected to bring families to APPI Sten scores of 8 or above in the 5 AAPI domains. It also required that all providers show results after 16 weeks of NPP curriculum. Finally, the implementation of the FDM added the expectation that providers were required to show that families were at a Stable or Self-Sufficient level in all FDM indicators by the time they finished case management. Table 1 presents the FDM indicators and the status levels reported by families at the time of their baseline assessment.

Changes in case management

The addition of the FDM produced profound changes in practice for all participating agencies. First, it provided all agencies with a standardized protocol of case management. Prior to the introduction to the FDM, some agencies used the Life Skills Progression (LSP) case management tool and others did not use any structured case management system. The FDM provided a standardized case management protocol across agencies, and it provided a centralized database that allowed F5SB, agency directors, case workers, and families to track progress with use of FDM indicators. Family case workers expressed a high level of satisfaction with this aspect of the FDM and the year of implementation (Harder + company, 2015).

Changes in family engagement

The FDM's empowerment plan process is centered on the idea that case workers and families discuss their overall situation using 19 indicators. At the end of the assessment, families and their case worker agree on a plan of action to improve their condition on areas where they recognize they are in crisis or at risk by leveraging on their areas of strength and the interventions the agency can offer the family. This process creates strong bonds between case workers and families that increase family trust on the process, which in turn increases their engagement with the interventions (Navarro, 2015, p. 10). Furthermore, the FDM indicators provided specific, clear, and measurable goals for families, which also increased their engagement in the process as they could see what change was expected from them (Harder + company, 2015).

Changes in practice

Before the FDM was implemented, many families received parent education classes only. The FDM required agencies to focus on other aspects of family well-being that complement parenting knowledge and attitudes. The idea behind the change was that support in areas of economic stability, access to services, emotional stability, and parenting readiness and skills would enhance the impact of parenting education classes. As Table 1 shows, about 50% of the families that received NPP between 2015 and 2020 were not aware of community resources they could access and receive, 30% experienced isolation

Table 1. Percent of families under each status level at Baseline and Follow-up by indicator – Families assessed by SBF5 collaborative during the June 2015-July 2020 period (n = 4,675).

		Status Level at Baseline %				Status Level at Follow up %			
Area of Family Wellbeing	Indicator	In crisis	At risk	Stable	Self-sufficient	In crisis	At risk	Stable	Self-sufficient
Economic stability	Adult Education	9	15	8	68	3	6	14	76
	Basic Household Necessities	3	17	38	42	1	4	33	62
	Employment	21	6	20	53	8	2	23	67
	Transportation	2	7	16	75	0	2	14	84
	Utilities	2	5	19	74	1	1	13	85
Access to services	Child Wellness	1	2	10	87	0	0	6	94
	Physical Health	1	4	15	80	0	1	11	88
	Prenatal Enrichment*	4	16	19	61	0	1	7	92
	Child Care	7	5	21	67	1	1	15	83
	Community Resources Knowledge	17	30	15	38	1	6	14	79
	Social Interactions	5	24	26	45	1	5	24	70
Emotional stability and home environment	Emotional Well-being, Sense of Life Value	2	12	46	40	0	4	38	58
	Functioning, Coping	2	14	46	38	1	3	38	58
	Home Environment	1	5	15	79	0	1	11	88
	Male Involvement	4	7	17	72	1	2	16	81
	Violence	1	2	17	80	0	0	14	86
	Presence of (substance) Abuse	1	3	12	84	0	1	9	89
Parental readiness and knowledge	Ages-Stages Screen*	1	3	16	80	0	1	12	88
	Attachment, Bonding	1	9	16	74	0	1	9	90

(i.e., low social interaction), about 20% were at risk or in crisis for providing basic household necessities, and 27% had difficulty in finding employment. Addressing these and other family needs became a priority as important as the performance in parenting skills and the AAPI. Family workers welcomed the family-centered approach as it enhanced their ability to help their clients, and agency managers welcomed the expansion of services and strengthening of their referral process this new requirement brought to their agencies. While there are gains across all indicators from baseline to follow-up, the greatest gains in the percentage of clients at a stable or self-sufficient level were for the indicators of "community resources knowledge," "social interactions," and "prenatal enrichment" with 40, 23, and 19 percentage points, respectively.

Results: impact of the FDM on NPP outcomes

To measure the impact of changes on NPP outcomes after FDM implementation, we compared the clients' performance on the AAPI before and after the implementation of the FDM. Clients' scores for the period before FDM implementation corresponded to all clients with a baseline and exit AAPI score during the July 2013-June 2015 period (n = 703). These scores were compared to those from clients with baseline and exit scores corresponding to

the July 2015-June 2017 period (n = 739). For a more accurate pre- and post-comparison, only agencies that served clients before and after FDM implementation were included in the analyses. These agencies were Bear Valley Community Hospital District's Mom & Dad Project (n = 232), Chino Valley TYKES Program (n = 141), Family Service Association (n = 137), Moses House Ministries (n = 400), Reach Out (n = 196), Walden Family Services (n = 215), and Westcare Needles (n = 116).

Table 2 presents the difference in average scores in AAPI Sten scores at baseline and exit during the pre and post FDM implementation periods. The top panel of Table 2 shows no statistically significant differences in clients' average Sten scores at baseline between the pre-post FDM implementation groups in any parenting skills domain measured by the AAPI.

The bottom panel of Table 2, however, shows that the average AAPI Sten scores in the period after the implementation of the FDM were significantly higher than clients' average exit scores before the implementation of the FDM in every parenting skills domain. The average scores that increased the least were power and independence (1.3 points or .59 standard deviations). The domain of empathy was the one with the highest increase (1.7 points or .71 standard deviations). The median Sten scores at baseline were not significantly different in either pre-post FDM comparison. As the box plots in Figure 1 show, the distribution of Sten scores at baseline was almost identical in all domains across the pre- and post-FDM implementation periods. On the other hand, the post FDM implementation median exit Sten scores are substantially higher than the median exit scores before FDM implementation. The median scores increased by 1 point in the domains of appropriate expectations, by 2 points in the domains of nonviolent discipline, appropriate family roles, and power and independence, and by 3 points in the domain of empathy. Across all five domains, the 25th percentile for exit scores following FDM implementation was at least as high as the median exit score before FDM implementation.

Table 2. Average baseline and exit AAPI Sten scores before and after FDM implementation.

		Average Sten Score		
Form	Area	Pre FDM (n = 703)	Post FDM (n = 739)	Difference[a]
A (Baseline)	Appropriate Expectations	5.03	5.21	0.18
	Empathy	4.71	4.69	−0.02
	Nonviolent Discipline	5.65	5.51	−0.15
	Appropriate Family Roles	5.34	5.46	0.12
	Power and Independence	5.76	5.62	−0.14
B (Exit)	Appropriate Expectations	6.61	8.00	1.39b**
	Empathy	6.62	8.32	1.70***
	Nonviolent Discipline	6.94	8.32	1.37***
	Appropriate Family Roles	6.85	8.49	1.64***
	Power and Independence	6.89	8.22	1.33***

[a]Calculated using a t test of independent samples assuming equal variances.
bp < 0.05, ** p < 0.01, *** p < 0.001

To account for potential differences in client characteristics that could explain the Sten score gains presented in Table 1 and Figure 1 after the implementation of the FDM, we compared client demographic characteristics for the pre- and post-implementation groups. The results in Table 3 show those participating in NPP after implementation of FDM were more frequently female, Hispanic, had higher income, education, were older and less frequently unemployed compared to before FDM..

These differences were expected. The great recession and housing market collapse of 2008 had a severe impact on the state of California, especially on counties located in the inland empire region like San Bernardino. Clients who were served during the 2013–2015 period were more likely to be experiencing economic hardship than clients who were served when the economy was more robust during the 2015–2017 period, as shown in Table 3.

Finally, as the last row of Table 3 presents, clients that participated in NPP after the FDM implementation received an average of 16 weeks of curriculum, compared to an average of 12 weeks of curriculum received by clients before FDM implementation.

Because the client and programmatic characteristics presented in Table 3 are likely to have an impact on exit Sten scores, we estimated a set of OLS multiple regression models with exit scores in each AAPI domain as the dependent variable. The independent variables in the models included

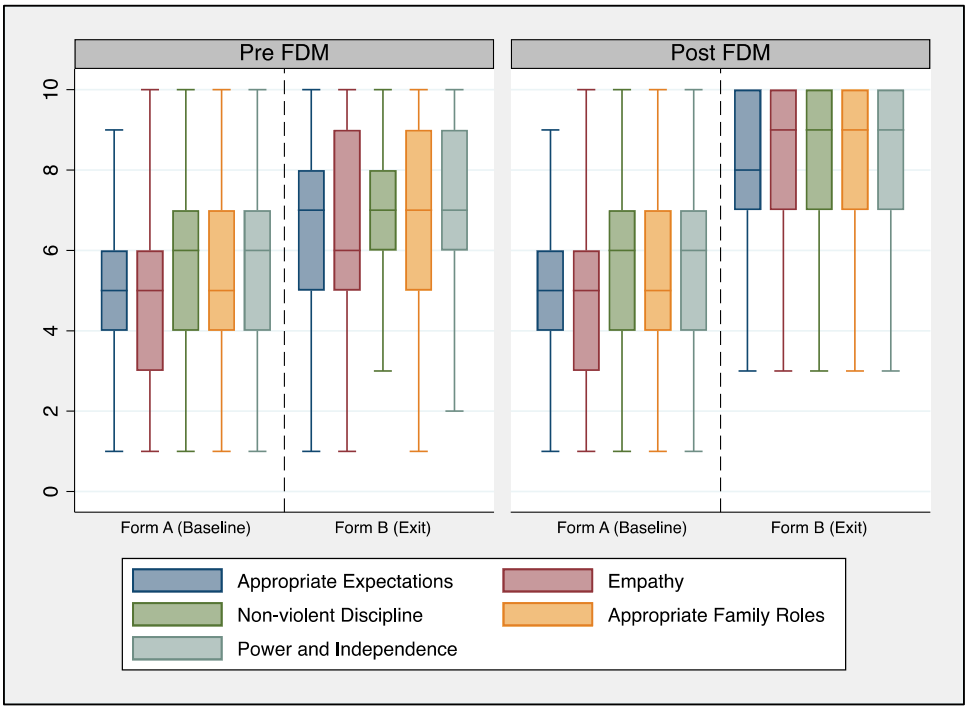

Figure 1. Baseline and exit AAPI Sten scores before and after FDM implementation – Box plots.

Table 3. Demographic characteristics for clients taking the AAPI before and after FDM implementation.

Variable	Pre FDM (n = 703)	Post FDM (n = 739)	Statistical significance
Male[a]	31.58	24.49	Chi2(1) = 8.98 Pr = 0.003
White[a]	43.1	24.22	Chi2(3) = 62.93 Pr = 0.000
Black	14.08	14.07	
Hispanic[a]	37.27	53.45	
Other	5.55	8.25	
Under 15 K	40.54	38.16	$X^2(5) = 18.51$ Pr = 0.002
15–25 K	12.66	14.88	
25–40 K	9.39	12.45	
40–60 K	4.27	6.36	
60+	3.41	5.55	
Unknown[a]	29.73	22.6	
Less than high school	32.72	30.18	$X^2(4) = 4.80$ Pr = 0.309
High school degree	27.03	27.88	
Some college	28.31	26.39	
College degree or higher	10.67	14.07	
Unknown	1.28	1.49	
Employed full time	16.5	20.3	$X^2(4) = 54.68$ Pr = 0.000
Employed part time	13.8	14.07	
Unemployed[a]	59.32	47.09	
Not in labor force[a]	4.84	15.16	
Unknown[a]	5.55	3.38	
Military status	7.68	6.36	$X^2(1) = 0.97$ Pr = 0.326
Age (in years)	28.27	31.04	t(1440) = 5.42 Pr = 0.000
Number of children	1.95	2.15	t(1440) = 2.48 Pr = 0.013
Weeks of NPP	11.65	15.91	t(1440) = 19.17 Pr = 0.000

[a]Denotes statistically significant categories in a post hoc adjusted residuals analysis using Bonferroni corrections.

a dichotomous variable denoting which clients received NPP after the implementation of the FDM as the independent variable of interest, a set of variables with the demographic characteristics presented in Table 3, a variable indicating the number of weeks of NPP curriculum for each client, and a set of binary indicators for each implementing agency. In addition, the models included a dichotomous variable that indicated which version of the APPI was completed by each client. In 2016, F5SB adopted an updated version of the AAPI (version 2.1). This variable was included to account for any changes in scores that could be explained by changes to the testing tool itself.

Table 4 presents the results of the multiple regression models. For brevity, the estimates corresponding to clients' demographic characteristics and implementing agencies are omitted from the table (see appendix B for the complete Table 5). As Table 4 shows, exit scores after the implementation of the FDM were higher in every domain when compared to exit scores before the implementation of the FDM; this was the case even after adjusting for changes in client characteristics, changes in dosage, testing tool, and agency-specific characteristics. The data show that controlling for other factors, implementing Nurturing Parenting in combination with the Family Development Matrix system increased the effectiveness of Nurturing Parenting for achieving

Table 4. OLS regression estimates of exit APPI scores by the parenting domain (n = 1442)[†‡].

Variable	Appropriate Expectations	Empathy	Nonviolent Discipline	Appropriate Family Roles	Power and Independence
Received FDM	1.217***	1.400***	0.980***	1.481***	0.987***
	(0.13)	(0.15)	(0.12)	(0.14)	(0.13)
AAPI version 2.1	0.315	0.515*	0.231	0.537**	0.512**
	(0.18)	(0.21)	(0.16)	(0.18)	(0.19)
Weeks of NPP	0.022	0.024	0.028*	0.011	0.031*
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
R-squared	0.262	0.247	0.29	0.26	0.257

†Estimates for gender, age, race/ethnicity, No. of children, employment, income, education, and implementing agency variables are omitted for brevity.
‡Robust standard errors in parentheses
*p < 0.05, ** p < 0.01, *** p < 0.001

outcomes in all parenting knowledge and attitude dimensions assessed. The adjusted estimates for the impact of the FDM are smaller than the unadjusted estimates presented in Table 2. These differences are explained by the change in the testing tool (AAPI 2.1), which, adjusting for other factors, was associated with an increase in exit scores of about .5 points in the domains of empathy, appropriate family roles, and power and independence. The additional weeks of NPP intervention also explained part of the pre-post difference in the domains of nonviolent discipline and power and independence, where each week of extra dosage was related to about .03 extra points. Differences in client demographic characteristics accounted for a very small part of the pre-post changes.

Discussion

Results of a pre-post FDM implementation comparison of exit Sten scores show an important gain in parenting knowledge and attitudes as measured by the AAPI. Our estimates show that part of the positive changes were explained by differences in client demographic characteristics between the pre-post groups, by changes in dosage (adding about 4 weeks to the NPP intervention) and a change in the testing tool after the adoption of the FDM. However, even adjusting for these differences, the gains in knowledge associated with participation in the NPP curriculum associated with the implementation of the FDM were substantial. The relationship between improved learning as a result of changes in a case management practice can be explained by increased family engagement. According to Navarro (2015, p. 14), successful family engagement in services in voluntary and semi-voluntary services like those provided by F5SB is determined by 3 conditions: receptivity for change (i.e. client's willingness to change/learn), buy-in for the program (i.e. client's understanding that completing the program will

produce the desired change/learning), and perceived agency support (i.e. trust that the agency will help the client achieve the desired goals). While clients' receptivity for change might be outside of an agency's control before the client visits the agency, a client-centered case management system that allows case workers to establish a close relationship with clients can be crucial for establishing buy-in and perceived agency support. The FDM empowerment plan process encourages a deep conversation between case workers and families around the 19 indicators of well-being. These conversations result in the development of realistic goals around improvement in areas of need supported by other interventions available in the agency or referrals to other services. Under the FDM protocol, case workers then follow up with clients on their progress formally every 90 days, yet in the case of NPP families, case workers also saw families on a weekly basis as they attended their parenting education courses, making strong bonds of trust that motivated families to succeed in NPP and other interventions they participated in.

According to agency managers who were interviewed as part of this study, client engagement and worker satisfaction increased substantially after the implementation of the FDM. Thus, the improvement in AAPI outcomes may be attributed to the stronger case worker-family bonds that resulted from the client-centered, strength-based case management brought by the FDM. The stronger bond between workers and families, in turn increased parenting education buy-in from families and trust in the agencies' support and interventions.

Limitations

This study used a pre-post comparison design. This design has limitations to prove a causal relationship between increased scores and the implementation of the FDM. While our design allowed us to rule out observable client differences, some programmatic changes, and agency-specific effects on improved scores, it does not allow us to definitively rule out other confounding explanations of the impact of the FDM. One plausible explanation could be related to the changes in the contractual agreements F5SB introduced at the same time the FDM was implemented. The added focus on AAPI outcomes and client data tracking that accompanied the implementation of the FDM might have altered the way agencies delivered the curriculum or scored the AAPI and could affect higher AAPI scores. While this possibility cannot be completely ruled out with the data available for this study, it is unlikely as an explanation for the increased scores. The data show increased scores across all agencies soon after the implementation of the FDM. It is also unlikely that all seven agencies could

simultaneously inflate their scores. Furthermore, interviews with agency coordinators present at the time of implementation reported no changes in the way that the AAPI was administered after implementation of the FDM.

Another limitation is the lack of a control group that would have allowed us to observe if the increased AAPI scores would have taken place in the absence of FDM implementation. While this is a possibility, it is very unlikely that an increase in AAPI scores of such magnitude across all NPP providers would have gone unnoticed by all providers. Furthermore, if there was an environmental condition that correlated positively with increased scores it would likely be increasing steadily over time rather changing suddenly and coincidentally with the time of FDM implementation. An analysis of scores over time (monthly) revealed that the increase in scores followed shortly after FDM implementation and abruptly rather than gradually in all dimensions tracked by the AAPI.

Conclusion

Parent education programs play a crucial role in the prevention of child maltreatment. While there is growing evidence about the features that make some parenting education programs more effective than others, there remains a need to further understand the conditions that make the implementation of parenting education programs most successful. The findings suggest that client-centered, strength-based case management using the FDM model significantly contributes to the increased impact of parent education programs such as NPP on client learning, knowledge, and behavior.

The addition of FDM to delivery of the NPP curriculum in the present study demonstrates that adding FDM to NPP works for enhancing the therapeutic relationship between the parent and the case manager, the parent education instructor, and the home visitor. This is similar to the joint effects established between motivational enhancement therapy and cognitive behavioral therapy, which were combined after being subjected to scientific scrutiny during the 1980s and 1990s. (McHugh, Hearon, & Otto, 2010).

Improving parenting knowledge and skills were measured by indicators in two instruments (AAPI and FDM). Using the strength-based approach of the FDM case management approach resulted in improvements in some domains, which appear to be foundational for improvements as secondary effects on other domains within the FDM indicators and on the AAPI. In addition, this approach does not result in service overload or overwhelming vulnerable clients with referrals and interaction with too many external service providers, as some studies have shown (Chuang, Wells, Green, & Reiter, 2011; Peters, Dieckmann, Dixon, Hibbard, & Mertz, 2007; Rosenbaum, 2015), suggesting that the augmentation may be a fine-tuning or dosage necessary for vulnerable families involved with child welfare locating services within the Goldilocks zone.

The combination of case management using the FDM model and parent education using the NPP model improved relationship skills development, and parents' relationships with professionals. Connections with case managers and parent educators appear to increase engagement, and implementing both models together benefits families by increasing relationship skills, knowledge, and behavior change. While the findings of the present study are robust, additional research on other parent education programs and FDM case management is needed to confirm these conclusions and assess the extent to which the findings can be replicated by combining FDM with other parent education curricula.

Notes

1. US Census Bureau, American Community Survey 2019; 5-year estimates.
2. The CEBC rates the NPP intervention for parents with children 0–5 at NR (not able to be rated).

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by First 5 San Bernardino California under the grant [Contract IC043], Matrix Outcomes Model LLC.

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Data availability

Data supporting the findings are available by request to Jerry Endres: jendres@csumb.edu and located on www.matrixoutcomesmodel.com/index.php.

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