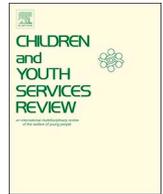




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Targeting services to reduce need after a child abuse investigation: Examining complex needs, matched services, and meaningful change

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ABSTRACT

Background and purpose: Matching needs and services following a child protective services (CPS) investigation is important for families with complex needs (i.e. mental health, substance use, and domestic violence) because several studies indicate that a service match is associated with important child welfare outcomes including decreased substance abuse, lowered rates of maltreatment, and increased family reunification. However, few of these studies have examined whether matching services reduces the different areas of need that service matching targets. In response, this study examined the change in need among families with complex needs that received matched services in a community-based prevention program following an initial CPS investigation.

Methods: The sample consisted of 836 families with complex needs related to mental health, substance use, and domestic violence that had an unfounded or inconclusive CPS investigation between July 2006 and December 2010. Eligible families had a child five or younger that remained at home after an initial CPS investigation and were at moderate to high risk of future maltreatment. The Family Assessment Form (FAF) was used to indicate need in three areas (concrete, clinical, and educational/parenting) and families received an array of services including concrete, educational/parenting, and/or clinical services. A match occurred if a caregiver had an aforementioned need and received a corresponding service. Reduced need was indicated by a change from a mean score of > 3 (problematic functioning) on the FAF to a mean score of < 3 (adequate functioning). Paired sample *t*-tests and Pearson Chi-2 analyses were used to examine bivariate associations between matched services by area of need on reduced need. Multivariate logistic regressions were conducted to determine the impact of matched services on reduced need in targeted areas and overall while controlling for caregiver demographic characteristics including ethnicity, age, income, number of caregivers and children, and history of abuse.

Findings: Bivariate analyses revealed that matched concrete and educational/parenting services was significantly associated with reduced need in targeted areas. For matched clinical services, this pattern was found for mental health and substance use but not for domestic violence. Multivariate analyses indicated that receiving matched concrete services was associated with an increased likelihood of overall reduced need (OR = 3.46; 95% CI = 1.84, 6.52) as was a match for educational/parenting need related to caregiver–child interactions (OR = 2.16; 95% CI = 1.15, 4.04). For clinical need, receiving matched clinical services for mental health (OR = 4.11; 95% CI = 2.39, 7.09) was associated with an overall reduction in need but not for substance use or domestic violence.

Conclusion and implications: Matching needs and services for families with complex needs following a CPS investigation remains important considering the number of families with complex needs that come to the attention CPS. Findings from this study highlight that matching needs and services can reduce targeted areas of need, overall need, and may serve as a catalyst for change in multiple areas of need.

1. Targeting matched services to reduce need among families with complex needs at risk of maltreatment

Although nearly 1.3 million families received home-based, post-

investigation services (HBPS) to address their needs following an allegation of abuse or neglect in 2015 (U.S. Department of Health & Human Services, 2017), child protective service (CPS) agencies continue to experience challenges serving families following a CPS investigation.

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On one hand, their children are safe enough to remain at home following a CPS investigation. On the other hand, they are at risk of future maltreatment due to the family's functioning and multiple needs that require attention. Of particular concern are families with complex needs related to domestic violence, mental health, and substance use given that these needs are among the most common reasons for CPS involvement and are associated with some of the worst outcomes among families involved with CPS (Barth, 2009; Casanueva et al., 2015; Child Welfare Information Gateway, 2014a, b; Marcenko, Hook, Romich, & Lee, 2012).

Despite the fact that some families with complex needs related to domestic violence, mental health, and substance abuse receive HBPS following a CPS investigation, matching services to meet their multiple needs remains difficult. A social worker must first engage the family, identify their needs, and find relevant services if available. Matching is further complicated because many families with complex needs may not engage in services due to cultural misunderstandings, stigma, feelings of coercion, fear of CPS, provider bias (real or perceived), or ambivalence to address identified needs (Altman, 2008; Faver, Crawford, & Combs-Orme, 1999; Kemp, Marcenko, Hoagwood, & Vesneski, 2009; King, Currie, & Petersen, 2014; Marcenko et al., 2012; Marcenko, Brown, DeVoy, & Conway, 2010). Further complicating this relationship, families with complex needs often do not receive the services they need or they receive services that they do not need (Simon & Brooks, 2017; Bagdasaryan, 2005; Cash & Berry, 2002; Chambers & Potter, 2008; Choi & Ryan, 2007; Lee & Logan-Greene, 2017; Smith & Marsh, 2002; Staudt & Cherry, 2009). Considering that several studies indicate that receiving matched services is associated with improvements in substance use, maltreatment, and family reunification (Simon, *In press*; Choi & Ryan, 2007; Kang, 2015; Marsh, Cao, Guerrero, & Shin, 2009; Ryan & Schuerman, 2004; Smith & Marsh, 2002), the benefit of matched services not only makes sense from a practice standpoint but is also empirically supported.

Several studies have examined important outcomes associated with the provision of matched services (Bagdasaryan, 2005; Choi & Ryan, 2007; Marsh et al., 2009; Smith & Marsh, 2002), but few of these studies have examined different areas of need and how matched services affect those multiple areas of needs. Studies that have looked at changes in need typically do not examine what types of services resulted in the observed changes (Al et al., 2012; Brooks et al., 2011; Lewis, 2005; Reuter, Melchior, & Brink, 2016). Providing matched services should facilitate change by addressing basic needs, increasing parental involvement and engagement, and improving client satisfaction (Faver et al., 1999; Kemp et al., 2009; Marsh et al., 2009; Smith & Marsh, 2002). However, this relationship remains understudied, particularly for families struggling with complex needs involving mental health, substance abuse, and domestic violence. Thus, further studies examining this relationship are warranted.

In response to the aforementioned gaps, our study examined the change in need among families with complex needs that received matched services following an initial CPS investigation. The study had the following specific aims:

- (1) To describe the level of need among families with complex needs at initial and termination assessments.
- (2) To examine the change in specific areas of need associated with matched services.
- (3) To examine whether the provision of matched services impacted overall need.

1.1. Matched services and a change in need

There exists a dearth of studies on the change in need among families that receive matched services after a CPS investigation. The few studies that exist have indicated that the participation in home-based services was associated with a change in need as measured by

indicators of family functioning (Brooks et al., 2011; Reuter et al., 2016). For example, Brooks et al. (2011) examined 3423 families with caregivers at risk of maltreatment that participated in a community-based prevention initiative, participating caregivers showed mean improvements in all areas of family functioning including living conditions, financial conditions, caregiver support, caregiver / child interactions, development stimulation, interaction between caregivers, and caregiver personal characteristics (Brooks et al., 2011). Furthermore, families experienced significant reductions in need as measured by the Family Assessment Form (FAF) as they became more engaged in services (Brooks et al., 2011). Although this evaluation research highlighted the importance of engaging clients in services to reduce levels of need, it did not determine what services resulted in the observed change in need.

Reuter et al. (2016) examined 306 caregivers referred to the same prevention initiative who were either pregnant mothers at risk of maltreatment ($n = 183$) or referred by CPS ($n = 123$). The caregivers experienced significant reductions in all areas of need as measured by decreases in family functioning using the FAF. In the subset of CPS-referred caregivers, this evaluation found that clinical need related to mental health and interactions between caregivers, an indicator of domestic violence, improved with participation in services; however, CPS-referred families with substance use issues did not experience a significant change in need (Reuter et al., 2016). Although this investigation advanced knowledge of how participation in services guided by a mental health services model can result in a change in need, it also did not examine what service components resulted in this change in need.

McCroskey and Meezan (1997) studied 240 families that were randomly assigned to receive home-based family preservation services or services as usual provided by CPS. Using the FAF, counselors reported significant albeit small improvements in family functioning related to parenting and caregiver support, and 15% of the families with severe ratings or moderate ratings had improvements by the end of services. Furthermore, families that received matched services were more likely to have reduced need and targeting concrete need was associated with improvements in need related to interpersonal relations; however, it should be noted that the benefits of matched concrete services was sustained solely for concrete need as the benefits in interpersonal relations disappeared during follow up a year later. These findings highlight the importance of targeting services to improve need and of how matching concrete needs can lead to short-term improvement in interpersonal relations and long-term improvements in concrete areas of need (McCroskey & Meezan, 1997).

Fernandez (2007) followed 51 families that were either self-referred or referred by CPS (56% of the sample) to a community-based center to receive an array of home-based services to prevent child maltreatment. Using the North Carolina Family Assessment Scale to examine change in need in five domains related to environment, parental capabilities, family interactions, family safety, and child well-being, Fernandez found that the families experienced reduced need in each domain and that receiving concrete services related to housing resulted in improvements between intake and termination in the parenting, family safety, and family interaction domains (Fernandez, 2007). Although this was one of the few studies to examine what services led to a change in need, it was limited by its small sample of 51 families that participated in a family support program in Australia.

Another study of 104 families with an open family-preservation case examined whether the provision of services affected need in domains related to environmental problems, household issues, relationship issues, domestic violence, substance abuse, and mental health among (Cash & Berry, 2003). Although the results indicated that the provision of clinical services was associated with successful program completion and a reduction in need among children, no specific types of services were associated with a reduction in need among caregivers (Cash & Berry, 2003). This study's small sample size may have affected its

results because the authors used more than the recommended number of independent variables in logistic regression models (Cash & Berry, 2003). Thus, they might not have been able to detect any change in need among caregivers.

Apart from the aforementioned findings, other relevant studies have explored different outcomes related to matched services (Bagdasaryan, 2005; Choi & Ryan, 2007) or explored the match between need and services (Chambers & Potter, 2008; Staudt & Cherry, 2009) but they did not examine any accompanying change in need. This prevents conclusions from being drawn about what precisely led to observed changes. Among the studies that looked at services, two did not examine the type of services (Brooks et al., 2011; Reuter et al., 2016) and the three studies that examined the type of services that led to a change in need were limited by their relatively small sample sizes, affecting their generalizability (Cash & Berry, 2002; Fernandez, 2007; McCroskey & Meezan, 1997). Thus, this study sought to expand the existing knowledge base on matching needs and services by exploring the provision of matched services in three specific areas of need—concrete, clinical, and educational—to examine whether matched services resulted in a corresponding change in need among families with complex needs with no prior history of CPS involvement.

1.2. Conceptual frameworks

This study was guided by three theoretical frameworks because of their relevance to our aims: Maslow's (1943) theory of human motivation, Patterson's (2002) risk and resiliency theory, and Kemp et al.' (2009) typology of parental engagement.

Maslow (1943) posited that human needs follow a hierarchical structure in which basic safety needs have to be met to address other needs. Thus, it is presumed that matching services to basic needs will facilitate change in other areas of need. Family risk and resilience theory posits that risk, or need, can be moderated by strengthening family functioning (Patterson, 2002). Thus, to mitigate risk and strengthen families, services should be matched to different areas of need because unmet need can lead to additional problems (Patterson, 2002). Last, Kemp et al.'s (2009) framework on parental engagement posits that preconditions, including need and cultural factors, should be addressed by the intentional use of strategies to facilitate change. Central among these engagement strategies is the provision of bridging services, that is, services that address preconditions to facilitate parental involvement resulting in reduced need.

2. Methods

2.1. Sample

The initial sample consisted of 2929 families that received services through a community-based prevention initiative targeting families with children aged 5 or younger that were at-risk for maltreatment (Brooks et al., 2011; First 5, 2014). The families typically received HBPS provided during bi-weekly home visits for a period of six months although the case could be extended if needed. The sample was restricted to 2008 families with both an initial and termination assessment to capture the change in need. To explore the experiences of families with complex needs, this sample was further restricted to 836 families with complex needs related to domestic violence, mental health problems, and substance abuse. This decision was made based on prior work indicating that families with complex needs were characteristically different compared to families without complex needs in that they had more needs in multiple areas and worse outcomes (See Simon & Brooks, 2017; Simon, In press).

Caregivers were predominantly female (97%) and Latina (73%) followed by African-American (15%) and Caucasian (12%). About half were between 26 and 35 (48%) whereas the remaining caregivers were between 18 and 25 (24%) or 36 or older (29%); the average age was

31.3 ($SD = 7.5$). Nearly 70% of the caregivers earned an annual household income of less than \$10,000 and 65% had received some high school education. Sixty-six percent reported being the sole caregivers, less than half had two to three children (47%), and nearly one quarter had four or more children (26%). Importantly, about half of the caregivers reported a personal history of maltreatment (52%) although they had no prior CPS involvement, and half of the caregivers had a subsequent report of maltreatment (47%) following program participation; this sample has been described in detail in prior research (See Simon & Brooks, 2016, 2017).

2.2. Measurement

Data were obtained from the local CPS agency and the lead agency in the initiative's network of community agencies. CPS provided demographic data on the children and caregivers in each household. The lead agencies provided additional demographic data and information related to need and services received (Brooks et al., 2011). These data were collected using a web-based version of the FAF, a practice-based instrument designed to help service providers standardize the assessment of service planning and family functioning (Children's Bureau of Southern California, 2016; McCroskey & Meezan, 1997; McCroskey, Nishimoto, & Subramanian, 1991).

The Family Assessment Form (FAF) was designed to measure family functioning using multiple items comprising six factors (i.e., domains): (a) living conditions, (b) financial conditions, (c) caregiver support, (d) caregiver-child interactions, (e) developmental stimulation, and (f) interactions between caregivers (see Appendix). The FAF also measures caregiver history and personal characteristics (Factors G & H, respectively). Prior research indicates that the FAF's subscales have interrater reliability between 75% and 80% and high interitem reliability (Cronbach's alpha) ranging from 0.68 to 0.93 (Children's Bureau of Southern California, 2016; McCroskey, Sladen, & Meezan, 1997).

2.3. Need and complex needs

During monthly home visits, an in-home outreach counselor (IHOC) measured family functioning on individual FAF items on a five-point Likert scale indicating: (1) *above average functioning*, (2) *generally adequate functioning*, (3) *moderate problem functioning*, (4) *major problem functioning*, and (5) *poor functioning* (see Appendix for a shortened version of the FAF). IHOCs could also score a half-point such as 2.5 if undecided between two categories (McCroskey & Nelson, 1989). We used this intake measurement to indicate need if the FAF factor mean score was 3 or higher because this was in indication of moderate problem functioning and IHOCs were trained to provide services targeting areas of need with a 3 or higher (Brooks et al., 2011; McCroskey & Nelson, 1989; Reuter et al., 2016).

A complex need was defined as a mean score of > 3 for any of the following clinical needs using the Family Assessment Form (FAF): (a) domestic violence (Factor F measuring interactions between caregivers), (b) substance abuse (Item H3 measuring substance abuse), or (c) mental health (all items from Factor H except H3, which measures substance abuse). This cutoff score was chosen because it indicates moderate problem functioning (Brooks et al., 2011; Children's Bureau of Southern California, 2016; McCroskey et al., 1991; McCroskey et al., 1997; McCroskey & Meezan, 1997).

To be in alignment with the existing literature, need was organized into the following FAF Factors: concrete need (Factor A, B, or C), educational/parenting need (Factor D or E), or clinical need (Factor F for domestic violence, Factor H for mental health, and FAF Item H3 measuring substance use). Item H3 was examined separately to analyze the experiences of caregivers with substance use need and because of prior research indicating that FAF it does not discriminate the construct of personal characteristics appropriately (Franke, Christie, Ho, & Du, 2013). FAF Factor G measuring caregiver history was included as a

demographic characteristic because of its historical nature.

2.4. Meaningful reduction in need

For the present analysis, a meaningful reduction in need was indicated by a change from a mean score of 3 or greater (problematic functioning) to a score of < 3 (adequate functioning) in any area of need. As previously noted, a cutoff score of 3 was chosen because it indicates moderate problem functioning (Brooks et al., 2011; Reuter et al., 2016). Change scores were calculated for each area of need to create a series of dichotomous variables (1 = reduction in need, 0 = no reduction in need). The choice to look at meaningful reduced need as measured by a dichotomized variable, as opposed to numerical reduction in need, was based upon prior work examining changes in family functioning (Brooks et al., 2011). Furthermore, this dichotomized change in family functioning (i.e. meaningful change) was particularly important because it captured a change in need i.e. moving from > 3 (problematic functioning) to < 3 (adequate functioning), which is in alignment with the training IHOCs received to assess family functioning (See Brooks et al., 2011; McCroskey et al., 1991; McCroskey & Meezan, 1997).

2.5. Overall reduced need

To capture overall reduced need, a mean score was calculated across all areas of need to create an overall need score ranging from 12 to 36. The overall mean score was then divided by the eight types of need to return to the original 5-point scale. This new score was coded as 1 (reduction in need) or 0 (no reduction in need), similar to the reduced need variable.

2.6. Service receipt

Families participating in the community-based prevention initiative were offered an array of HBPS that were documented in the FAF case notes (see First 5, 2010a, First 5, 2010b, First 5, 2014). Following the baseline assessment and during the first follow-up assessment, the IHOC recorded the various services that were provided as agreed upon with the family during a case planning meeting. The IHOCs were instructed to provide a service that would address any area of need in the FAF with a score of 3 or greater because this indicated problematic functioning (See Brooks et al., 2011). This information was used to create dichotomous variables indicating receipt or no receipt of the following service types: (a) concrete, (b) educational, (c), and clinical. Service receipt categories were not mutually exclusive; that is, families often received more than one service.

2.7. Matched services

In order to compare the impact of matched services relative to a mismatch, a dichotomous variable was coded as a “match” if a caregiver had any of the eight types of need and received a corresponding service. A “mismatch” was indicated if a caregiver had a need but did not receive a service or had no need but received a service. This conceptualization of a mismatch was used because these are the two most common findings in the matching literature with respect to a mismatch (Simon & Brooks, 2017; Bagdasaryan, 2005; Cash & Berry, 2002; Chambers & Potter, 2008; Choi & Ryan, 2007; Lee & Logan-Greene, 2017; Smith & Marsh, 2002; Staudt & Cherry, 2009). This coding was used to create match covariates for each type of need—three for concrete need and concrete services, two for educational need and educational services, and three for clinical need and clinical services.

2.8. Caregiver demographics

This study controlled for the following caregiver demographics in

multivariate analyses: (a) ethnicity (African American, Asian, and Hispanic vs. Caucasian); (b) primary caregiver's age (26–35 and 36 or older vs. 18–25); (c) number of caregivers in the household (two or three caregivers vs. one caregiver); (d) number of children (two or three children and four or more children vs. one child); (e) household income (\$10,000–\$20,000 and more than \$20,000 vs. less than \$10,000); and (f) history of abuse (history of abuse vs. no history of abuse).

2.9. Analytic strategy

For the first aim, paired sample *t*-tests were used to compare need between the initial and termination assessment. For the second aim, Pearson chi-square analyses were used to examine the bivariate association between matched services by area of need and reduced need. For the third aim, multivariable logistic regressions were conducted to determine the impact of matched services per area of need on overall reduced need while controlling for demographic characteristics. All statistical analyses were conducted using Stata (version 12.1).

3. Results

Table 1 describes the needs, services, and matches among caregivers with complex needs. As a reminder, need was indicated by a mean FAF score at baseline of 3 or higher because it indicated moderate problem functioning and there was significant overlap among the need and services categories. Nearly 75% of caregivers had a concrete need of which 45% was related to living conditions, 55% was related to financial conditions, and half was related to caregiver support; the average FAF scores for concrete need ranged from 2.8 for living conditions to 3.0 for financial conditions and caregiver support. Similarly, nearly three quarters of caregivers had an educational/parenting need of which 60% was related to caregiver/child interactions and 67%

Table 1
Caregiver need, services, and matches (N = 836).

	M (SD)	% ^a
Concrete Need (n = 594)		71.1
Living Conditions	2.81 (0.75)	45.3
Financial Conditions	3.03 (0.70)	55.3
Support to Caregivers	2.96 (0.65)	50.9
Educational/Parenting Need (n = 597)		71.4 ^b
Caregiver/Child Interactions	3.13 (0.61)	60.9
Developmental Stimulation	3.10 (0.66)	63.6
Clinical Need (n = 836)		100%
Domestic Violence	3.53 (0.55)	75.4
Mental Health	3.00 (0.58)	56.2
Substance Abuse	1.82 (0.92)	18.5
Home-Based, Post-investigation Service Received	n	%
Concrete	477	57.1
Educational	574	68.7
Clinical	549	65.7
Concrete Match	346	47.7
Living Conditions	222	35.2
Financial Conditions	285	43.6
Support to Caregivers	244	37.1
Educational/Parenting Match	406	53.1
Caregiver/Child Interactions	336	45.8
Developmental Stimulation	361	49.9
Clinical Match	549	65.7
Domestic Violence	413	53.9
Mental Health	317	45.9
Substance Abuse	96	16.1

^a The valid percentage for need indicates what percentage of caregivers had need as indicated by a mean FAF rating of 3 or higher. The percentages at the top of the areas of need represent the number of caregivers that had that particular need; the percentages underneath represent the percentages within the areas of need.

related to development stimulation; the mean educational/parenting need was 3.13 for caregiver/child interactions and 3.10 for developmental stimulation. Every caregiver had a clinical (i.e., complex) need as it was part of the inclusion criteria for this. The majority of caregivers were experiencing domestic violence (75%) followed by mental health (56.2%) and substance use (18.5%). The highest areas of clinical need were related to interactions between caregivers with a mean score of 3.5 followed by mental health problems with a mean score of 3. The lowest area of need was substance abuse with a score of 1.8.

With respect to services received, nearly 70% of caregivers received educational/parenting services, 66% received clinical services targeting domestic violence, mental health, or substance use, and 57% received concrete services. With respect to service matches (i.e., receiving the service when it was needed), nearly half of caregivers had a concrete match (48%) with specific matches targeting living conditions (35%), financial conditions (44%), or caregiver support (37%). A little over half had an educational/parenting match (53%) with specific matches targeting caregiver/child interactions (46%) or developmental stimulation (50%). Last, 66% of caregivers had a clinical match with specific matches targeting domestic violence (54%), mental health (46%), or substance use (16%).

Table 2 compares the initial and termination assessments in each area of need as well as the mean difference between the two assessments as indicated by the mean FAF Factor score. Separate comparisons were made between caregivers who received matched services (i.e., caregivers who received a concrete, educational, or clinical service in their respective area if they needed it according to their baseline assessment) and caregivers who received unmatched services (i.e., caregivers who did not receive a concrete, educational, or clinical service in their respective area if they needed it according to their baseline assessment). Both groups experienced significant mean reductions in their level of need in each area of need as indicated by paired *t*-tests. Generally speaking, caregivers that received matched and unmatched services experienced reductions in each area of need between initial and termination assessment. However, caregivers that received matched services had larger mean reductions from baseline need to termination need in each area of need with one exception—caregivers experiencing domestic violence. In analyses not shown here, additional *t*-test were run comparing the differences between the groups, and all of them were significant except for domestic violence.

Table 3 displays the bivariate association between matched services by area of need on meaningful reductions in need (as indicated by a mean change in need from a score of 3 or higher to 3 or lower between intake and termination). As a reminder, the row percentages are given, so comparison should be made within the columns. Furthermore, it is important to remember that Chi-2 analyses can indicate what variables are associated with one another but do not indicate the strength of the relationship. The results are presented below by area of need.

For caregivers with concrete need, each type of match was significantly associated with a meaningful reduction in need in the respective area. For example, 50% of caregivers who received matched concrete services experienced a mean reduction in need related to financial conditions relative to 16% of caregivers who did not receive matched concrete services ($\chi^2 = 83.4, df = 1, p < 0.001$). Similar reductions in need were observed for matched services for concrete need related to living conditions and support to caregivers, 56% versus 24% for financial conditions ($\chi^2 = 70.8, df = 1, p < .001$) and 58% versus 22% for Support to Caregivers ($\chi^2 = 85.9, df = 1, p < 0.001$), respectively.

A similar pattern emerged for educational/parenting need in that receiving matched educational/parenting services was associated with a meaningful reduction in need relative to caregivers who did not receive matched educational services—namely, 58% versus 25% for caregiver–child interactions ($\chi^2 = 79.1, df = 1, p < 0.001$) and 46% versus 20% for development stimulation ($\chi^2 = 54.9, df = 1, p < .001$).

For clinical need, receiving matched clinical services for mental

Table 2
Comparison of families with complex needs at initial and termination assessment (Unmatched vs. Matched Service).

	Unmatched Services			Matched Service		
	Mean Initial Assessment (SD)	Mean Termination Assessment (SD)	t(df)	Mean Initial Assessment (SD)	Mean Termination Assessment (SD)	t(df)
Concrete Need						
Living Conditions	2.76 (0.70)	2.37 (0.65)	13.5 (374)***	3.11 (0.68)	2.47 (0.69)	15.6 (339)
Financial Conditions	2.93 (0.61)	2.50 (0.59)	14.2 (376)***	3.41 (0.57)	2.61 (0.65)	18.1 (340)
Support to Caregivers	2.91 (0.64)	2.46 (0.62)	16.2 (375)***	3.21 (0.55)	2.48 (0.64)	19.0 (340)
Educational Need						
Caregiver/Child Interactions	2.93 (0.63)	2.43 (0.63)	15.6 (355)***	3.40 (0.47)	2.60 (0.68)	22.0 (397)
Developmental Stimulation	2.89 (0.68)	2.42 (0.65)	15.4 (344)***	3.42 (0.46)	2.62 (0.69)	21.6 (390)
Clinical Need						
Domestic Violence	3.48 (0.61)	2.76 (0.73)	13.4 (230)***	3.60 (0.48)	2.91 (0.73)	17.9 (348)
Mental Health	2.95 (0.63)	2.43 (0.61)	14.7 (369)***	3.31 (0.29)	2.70 (0.61)	16.9 (314)
Current Substance Use	1.68 (0.84)	1.57 (0.68)	3.66 (491)***	3.35 (0.49)	2.13 (0.99)	11.83 (95)

Note: Paired Sample T-Tests for numeric variables. A mean FAF score of 3 or higher indicated need. Sample size equals (df) + 1.
*** p < 0.001.

Table 3
The association between matched services and meaningful reductions in need.

Matched Service by Areas of Need ^a	Reduced need ^b		χ^2
	No (%)	Yes (%)	
Matched Concrete Services for Concrete Need			
Living Conditions (n = 625)			
No	84.4	15.6	83.4 _{*, **, ***}
Yes	50.2	49.8	
Financial Conditions (n = 647)			
No	76.3	23.7	70.8 _{***}
Yes	43.9	56.1	
Support to Caregivers (n = 650)			
No	78.2	21.8	85.9 _{***}
Yes	42.3	57.7	
Matched Educational Services for Educational Need			
Caregiver/Child Interactions (n = 731)			
No	74.8	25.3	79.1 _{***}
Yes	42.4	57.6	
Developmental Stimulation (n = 712)			
No	79.9	20.1	54.9 _{***}
Yes	53.8	46.2	
Matched Clinical Services for Clinical Need			
Domestic Violence (n = 580)			
No	58.0	42.0	0.01
Yes	57.6	42.4	
Mental Health (n = 684)			
No	77.5	22.5	81.9 _{***}
Yes	43.8	56.2	
Substance Abuse (n = 588)			
No	95.9	4.1	46.9 _{***}
Yes	76.0	24.0	

One degree of freedom for all χ^2 statistics.

^a = Matched services examined by area of need as indicated by mean of > 3 at intake

^b = Reduced Need measured as moving from > 3 at intake to < 3 at termination

* = p < 0.05.

** = p < 0.01.

*** = p < 0.001.

health and substance use experienced was associated with meaningful reductions in need between intake and termination assessments. Specifically, 56% of caregivers who received matched clinical services for mental health experienced a mean reduction in need relative to 23% of caregivers who did not receive matched clinical services ($\chi^2 = 81.9$, $df = 1$, $p < 0.001$). Similarly, 24% of caregivers who received matched clinical services for substance use experienced reduced mean need relative to 4% of caregivers who did not receive matched clinical services ($\chi^2 = 46.9$, $df = 1$, $p < 0.001$). Receiving matched clinical services for domestic violence was not significant.

Table 4 highlights the impact of matched services by area of need on overall reduced mean need between intake and termination while controlling for demographic characteristics. As a reminder, odds ratios greater than one indicate a mean reduction in overall need whereas odds ratios less than one indicate no change or a mean increase in overall need. The Likelihood-Ratio χ^2 and Pseudo R2 are provided for the demographic control variables and the full model that contains the demographic control variables and match variables. The full model indicates a better fit as indicated by the significantly improved Likelihood-Ratio χ^2 and Pseudo R2 with the match variables.

For caregivers with concrete need related to living conditions, receiving matched concrete services was associated with increased odds of an overall mean reduction in need (OR = 3.46; 95% CI = 1.84, 6.52). Similarly, receiving matched educational/parenting services for educational need related to caregiver–child interactions was associated with increased odds of overall mean reduction in need (OR = 2.16; 95% CI = 1.15, 4.04). For clinical need, only receiving matched clinical services for mental health was associated with an overall mean reduction in need (OR = 4.11; 95% CI = 2.31, 7.09). Regarding clinical need

Table 4
Matched services on overall reduced need between intake and termination.

Matched Services by Area of Need (n = 625)	Overall Reduced Need ^{a,b}	
	OR	95% CI
Matched Concrete Services for Concrete Need		
Living Conditions	3.46 _{***,**}	[1.84, 6.52]
Financial Conditions	1.29	[0.69, 2.42]
Support to Caregivers	1.90	[1.01, 3.57]
Matched Educational Services for Educational Need		
Caregiver/Child Interactions	2.16 _*	[1.15, 4.04]
Developmental Stimulation	0.71	[0.36, 1.37]
Matched Clinical Services for Clinical Need		
Domestic Violence	1.04	[0.59, 1.81]
Mental Health	4.11 _{***}	[2.39, 7.09]
Substance Abuse	1.27	[0.66, 2.46]
Likelihood-Ratio χ^2 (Control variables)	74.4 _{***}	
Pseudo R ² (Control variables)	0.09	
Likelihood-Ratio χ^2 (Full Model)	223.5 _{***}	
Pseudo R ² (Full Model)	0.30	

Odds ratios > than 1 equal a reduction in overall need.

^a Adjustments were made for the following caregiver demographic characteristics: ethnicity, age, number of caregivers, number of children, income, & history of abuse.

^b = Reduced Overall Need measured as moving from > 3 at intake to < 3 at termination.

* = p < 0.05.

** = p < 0.01.

*** = p < 0.001.

related to domestic violence and substance abuse, the provision of matched clinical services was not significant.

4. Discussion and implications

This study expanded on prior studies not only by examining the level of need and change in need among families at risk of maltreatment but also by specifying whether specific areas of need were impacted by matched services. Although the design of our study precludes us from making causal inferences, our findings provide compelling evidence for the benefit of providing matched services to families with complex needs at risk of maltreatment and adds to the evidence that receiving matched services can not only impact targeted areas of need but need overall (Fernandez, 2007; McCroskey & Meezan, 1997).

At the bivariate level, matched services reduced need among caregivers in every area of need with one exception—domestic violence. Of particular note, caregivers who received matched concrete services for financial conditions, an indicator of having trouble paying bills, experienced a meaningful reduction in need; that is, their average level of need decreased from a score of 3 or higher (indicating moderate problematic functioning) to < 3. This meaningful reduction in need was also observed for matched services targeting educational need, an indicator of parenting need, and matched services targeting clinical need involving mental health and substance abuse, which has been found in other studies examining similar populations (Fernandez, 2007; McCroskey & Meezan, 1997; Reuter et al., 2016). That is, caregivers receiving matched services had meaningful reductions in need in their respective areas compared to caregivers that did not receive matched services, which provides further evidence that matched services can reduce need in targeted areas (Fernandez, 2007; McCroskey & Meezan, 1997).

At the multivariate level, findings also indicated that matched services in each area of need was associated with reduced overall need. This was evident for caregivers receiving matched services targeting concrete need related to living conditions, an indicator of poverty, which is also similar to aforementioned studies (Fernandez, 2007; McCroskey & Meezan, 1997). This provides further evidence supporting the importance of addressing basic safety needs as a starting point for

change (Kemp et al., 2009; Maslow, 1943; McCroskey & Meezan, 1997) and highlights the importance of ensuring that funding is available to meet the concrete needs of families at risk of maltreatment. Similar changes in overall reduced need were observed for matched services for educational need related to caregiver–child interactions and clinical need related to mental health. This makes sense from a family systems change perspective in that overall need can be improved by strengthening different areas of family functioning and is in alignment with various change frameworks suggesting that targeted services in one area of need can result in change in other areas of need (Kemp et al., 2009; Maslow, 1943; Patterson, 2002).

Unlike matched concrete and educational/parenting services, matched clinical services for substance use and domestic violence did not reduce overall need. This result is likely due to the fact that families with severe clinical need related to substance abuse and domestic violence are typically not referred for voluntary HBPS as they likely had a formal child welfare case opened although there was some benefit for families with substance use need at the bivariate level. It is unclear why families did not appear to benefit from matched clinical services for domestic violence. Although data on neighborhood service availability were not accessible, this result may have been affected by the lack of availability of domestic violence services in high need areas, which has been found to affect service provision (Wulczyn, Feldman, Horwitz, & Alpert, 2014). Last, it could also be an artifact of the missing data for the domestic violence variable. Future studies should examine the experiences and barriers faced by families with substance use and domestic violence problems in accessing and engaging in HBPS and how the availability of community resources impacts a services match.

Last, it is important to discuss these findings with respect to the alternative response/differential response literature considering that the community-based prevention initiative in this study is akin to a Track 2 response (see Conley & Berrick, 2010; Schene & Oppenheim, 2005) in which families at-risk of maltreatment are referred for HBPS following a CPS investigation. Although it is difficult to directly compare this county's service response model to models in other states and counties that provide a family assessment response (see Casey Family Programs, 2012; Fluke, Merkel-Holguin, & Schene, 2013; Merkel-Holguin & Bross, 2015), this study provides evidence of the importance of matched services to strengthen families that are at-risk of maltreatment following a CPS investigation. They also complement prior empirical investigation of this same population, which indicated that matched services targeting educational/parenting need can reduce recidivism (Simon, *In press*). It is promising that the participating CPS agency has formally adopted a comprehensive prevention approach that also adds a Track 1 response to identify families that would benefit from HBPS during the screening of CPS referrals. Although the prevention initiative initially began during a trial period, it has now been fully implemented and is expanding its capacity (Los Angeles County Office of Child Protection, 2017). Thus, it is important for CPS agencies to broaden their prevention efforts to address the complex needs of families at different entry and exit points along the child welfare services continuum. Furthermore, CPS agencies need to provide training to ensure that social workers understand the spectrum of the child welfare services available along this continuum as well as reduce social workers caseload to ensure that they have time and energy to triage appropriately.

4.1. Limitations

Although this study made important contributions, it is important to take into consideration some limitations. The reduction in need from

intake to termination only captured matched services obtained by caregivers during the initial assessment period that typically lasted four to six weeks. It is possible that the observed change in need might have been different had this study included services data from subsequent assessments. Although some services data were available, they could not be used due to the number of missing observations. Furthermore, we were unable to control for initial need due to collinearity between initial need and the match variables, so results may have been different had they been included.

Missing data also affected the study sample and some analyses. As described above, roughly one fifth of the initial sample was excluded because they had no termination assessment, so change in need could not be assessed for these participants. A comparison of demographic characteristics between the final study sample and caregivers who were excluded revealed only one significant difference; caregivers with missing data were more likely to have a lower household income (Simon & Brooks, 2017). Furthermore, the sample size in the logistic regression models was reduced due to listwise deletion. Multiple imputation was not conducted because there were some data that were not missing at random, which is an assumption that needs to be met for multiple imputation. However, comparisons were made between models with and without covariates that reduced sample size, and similar findings emerged with respect to magnitude and direction for the variables of interest.

Last, it is important to note that the same IHOC rated the caregivers during the initial and termination assessments. IHOCs were trained to consult the FAF definitions prior to scoring and were allowed to use half points when deciding between two scores. However, it is possible that IHOCs may have been inclined to rate the caregivers as having lower scores (indicating improvement) during the termination assessment. Despite this potential limitation, the FAF subscales have been found to have high interrater reliability, between 75% and 80%, and high interitem reliability (Cronbach's alpha), ranging from 0.68 to 0.93 (Children's Bureau of Southern California, 2016; McCroskey et al., 1997), so the ratings should not have been affected significantly.

5. Conclusion

Matching needs and services is important for families with complex needs related to domestic violence, mental health, and substance use, and findings from this study highlight that receiving matched services has the potential to result was associated with meaningful reductions in individual areas of need and overall need for families with children at risk of maltreatment. Receiving matched services resulted in reduced mean need in many targeted area of need and in mean reductions in overall need. Of particular note, caregivers who received matched concrete services targeting living conditions experienced a significant reduction in overall need supporting the notion that addressing basic safety needs can serve as a starting point for change. Similarly, reductions in overall need were observed for matched services for educational/parenting need and clinical need related to mental health. These findings highlight how matched services can reduce targeted areas of need and may serve as a catalyst for change in other areas of need.

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Appendix: Family Functioning Factors and Items (Shortened Version)**FAF Rating Scale:**

- (1) Above average functioning.
- (2) Generally adequate functioning.
- (3) Moderate problem functioning.
- (4) Major problem functioning.
- (5) Poor functioning.

Section A: Living Condition

- A1 Cleanliness/Orderliness — Outside Environmental Conditions.
- A2 Cleanliness/Orderliness — Outside Home Maintenance.
- A3 Cleanliness/Orderliness — Inside Home Maintenance.
- A4 Safety — Outside Environmental Conditions.
- A5 Safety — Outside Home Maintenance.
- A6 Safety — Inside Home Maintenance.

Section B: Financial Conditions

- B1 Financial Stress.
- B2 Financial Management.
- B3 Financial Problem Due to Welfare System/Child Support.
- B4 Adequate Furniture.
- B5 Availability of Transportation.

Section C: Support to Caregivers

- C1 Support from Friends and Neighbors and Community Involvement.
- C2 Available Child Care.
- C3 Chooses Appropriate Substitute Caregivers.
- C4 Available Health Care.
- C5 Provides for Basic Medical/Physical Care.
- C6 Ability to Maintain Long-Term Relationship.

Section D: Caregiver/Child Interactions

- D1 Understands Child Development.
- D2 Daily Routine for Child(ren).
- D3 Use of Physical Discipline.
- D4 Appropriateness of Disciplinary Methods.
- D5 Consistency of Discipline.
- D6 Bonding Style with Child(ren).
- D7 Attitude Expressed About Child(ren)/Caregiver Role.
- D8 Takes Appropriate Authority Role.
- D9 Quality And Effectiveness of Communication (Caregiver to Child[ren]).
- D10 Quality And Effectiveness of Communication (Child[ren] to Caregiver).
- D11 Cooperation/Follows Rules and Directions.
- D12 Bonding to Caregiver.

Section E: Developmental Stimulation

- E1 Appropriate Play Area/Things — Inside Home.
- E2 Provides Enriching/Learning Experiences for Child(ren).
- E3 Ability and Time for Child(ren)'s Play.
- E4 Deals with Sibling Interactions.

Section F: Interactions between Caregivers

- F1 Conjoint Problem Solving Ability.
- F2 Manner of Dealing with Conflicts/Stress.
- F3 Balance of Power.
- F4 Supportive.
- F5 Caregivers' Attitude toward Each Other.
- F6 Ability to Communicate (Verbal and Nonverbal).

Section G: Caregiver History

- G1 Stability/Adequacy of Caregiver's Childhood.
- G2 Childhood History of Physical Abuse/Corporal Punishment.
- G3 Childhood History of Sexual Abuse.
- G4 History of Substance Abuse.
- G5 History of Aggressive Act as an Adult.
- G6 History of Being an Adult Victim.
- G7 Occupational History.
- G8 Extended Family Support.

Section H: Caregiver Personal Characteristics

- H1 Learning Ability/Style.
- H2 Ability to Trust.
- H3 Current Substance Use.
- H4 Passivity/Helplessness/Dependence.
- H5 Impulse Control.
- H6 Cooperation.
- H7 Emotional Stability (Mood Swings).
- H8 Depression.
- H9 Aggression/Anger.
- H10 Practical Judgment/Problem-Solving and Coping Skills.
- H11 Meets Emotional Needs of Self/Child.
- H12 Self-Esteem.

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