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Service needs of adolescent parents in child welfare: Is an evidence based, structured, in-home behavioral parent training protocol effective?★

Grace S. Hubel^{a,*}, Whitney L. Rostad^b, Shannon Self-Brown^c, and Angela D. Moreland^d

^aCollege of Charleston, Department of Psychology, Charleston, SC, United States

^bCenters for Disease Control and Prevention, National Center for Injury Prevention and Control, United States

^cGeorgia State University, School of Public Health, Atlanta, GA, United States

^dMedical University of South Carolina, Charleston, SC, United States

Abstract

SafeCare is an evidence-based behavioral parent training intervention that has been successfully implemented in multiple state child welfare systems. A statewide implementation in Oklahoma established the effectiveness of SafeCare with a diverse group of parents, which included adolescent parents under 21 years of age, a particularly at-risk group. The current study examined whether SafeCare is also effective for this subsample of 294 adolescent parents with regard to child welfare recidivism, depression and child abuse potential, and attainment of service goals. Post-treatment adolescent parent ratings of program engagement and satisfaction were also examined. Among the subsample of adolescent parents, the SafeCare intervention did not result in significantly improved outcomes in terms of preventing recidivism or reduction in risk factors associated with child abuse and neglect as compared to child welfare services as usual. Further, no significant differences in program engagement and satisfaction between SafeCare and services as usual were detected. These findings shed light on the potential differences in program effectiveness between adolescent and adult parents, and the need for future research to rigorously evaluate the effectiveness of behavioral parenting programs with adolescent parents.

Keywords

Child welfare; Evidence-based treatment; SafeCare; Adolescent parents

1. Introduction

When targeting adolescents in the child welfare system, research and practice often focus on adolescents who experience abuse or neglect at the hands of their caregivers. However,

*Corresponding author at: Department of Psychology, The College of Charleston, Charleston, SC, 29424, United States. hubelgs@cofc.edu (G.S. Hubel).

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adolescents also receive child welfare services as parents. The rate of adolescent pregnancy in the U.S. has reached a historic low: 22.3 out of every 1000 U.S. adolescents gave birth during 2015, a rate that has fallen 64% since 1991 (Martin, Hamilton, Osterman, Driscoll, & Mathews, 2017). Still, rates of adolescent pregnancy in the U.S. are the highest when compared to the world's 29 most advanced countries (UNICEF, 2013).

Pregnancy continues to put an adolescent at risk for physical health problems, economic hardships (e.g., receipt of welfare), and low educational attainment (Elfenbein & Felice, 2003). Unfortunately, adolescent parents often grow up in conditions of poverty, are exposed to abuse and neglect, and frequently lack the skills and resources necessary to create safe, stable, and nurturing early care environments for their children (Sidebotham, Heron, & ALSPAC Study Team, 2006). These skill and resource constraints increase the likelihood that their own children will be exposed to harsh parenting practices, abusive forms of physical discipline, lack of access to basic needs, and low levels of parental monitoring and stimulation in their care environments (Bartlett & Easterbrooks, 2012; Lee, 2009; Lounds, Borkowski, & Whitman, 2006). Further, children born to adolescent parents are more likely to become adolescent parents themselves, thus continuing the cycle of risk (Hoffman & Maynard, 2008).

The prevalence of this cycle of risk was demonstrated in a recent population-level, longitudinal study of the relationship between adolescent pregnancy, maternal history of maltreatment, and intergenerational abuse and neglect (Putnam-Hornstein, Cederbaum, King, Eastman, & Trickett, 2015). Among 85,084 births to adolescents (aged 15–19) in California during 2006 and 2007, 28% were to a mother who had been maltreated between 10 years of age and her conception date (this figure included both unsubstantiated and substantiated reports). Further, among adolescent mothers who had prior unsubstantiated reports of maltreatment themselves, 35.9% of their children were reported to have been maltreated by age 5, compared to 44.1% of adolescents who had previously been substantiated as victims of abuse or neglect. The prevalence of abuse and neglect for children of mothers who had previously been maltreated was significantly higher than the rate of abuse and neglect for children of mothers who had not been previously maltreated. Thus, the mother's experience of maltreatment was a strong predictor of maltreatment within the next generation (Putnam-Hornstein et al., 2015). To decrease the likelihood of intergenerational cycles of child abuse and neglect and associated risk factors, it is critical for child welfare services to address the needs of adolescent parents in order to prevent recidivism and improve parenting skills among referred adolescent-led families.

SafeCare (SC) is an evidence-based behavioral parent training intervention that has demonstrated effectiveness in reducing child maltreatment recidivism (Chaffin, Hecht, Bard, Silovsky, & Beasley, 2012b). Specifically, SC was developed to reduce the occurrence of risk factors for child maltreatment by improving parent-child/infant relationships, parent knowledge and skills, and other contextual environmental factors (Lutzker & Bigelow, 2002). The efficacy of the SC model in reducing child maltreatment was demonstrated among multiple populations of at-risk parents, including parents referred from child protective services, substance abuse treatment programs, and agencies that serve

disadvantaged families (Carta, Lefever, Bigelow, Borkowski, & Warren, 2013; Chaffin et al., 2012b; Silovsky et al., 2011).

A considerable number of adolescent parents have participated in SC due to many factors, including involvement in child welfare and having at-risk home environments. For instance, in an earlier trial of SC, families were referred to the program after being identified as ‘at-risk’ by a local hospital due to the parents’ age, lack of a social support network, and a low level of education (Gershater-Molko, Lutzker, & Wesch, 2003). While many adolescents have participated in SC, recruitment has not targeted adolescents, the intervention does not specifically address issues pertaining to adolescents, and research has not investigated intervention effectiveness among adolescents.

Given the high risk of maltreatment in adolescent-led families, it is important to examine whether SC is effective for use with this specific population. Importantly, the manualized SC intervention was developed in the 1980s and 1990s, and although the curriculum has been revised to include new research and technology (Guastafarro, Lutzker, Graham, Shanley, & Whitaker, 2012; Self-Brown, C. Osborne, Rostad, & Feil, 2017), it has not been revised to include research on adolescent development and adolescent parenting. Developmental-ecological theory, which postulates that adolescent parenting is influenced by interactive relationships between characteristics of the adolescent, characteristics of the adolescent-led family, and broader contextual factors, is helpful in informing speculation about how SC may or may not meet the needs of adolescent parents (Bartlett, Raskin, Kotake, Nearing, & Easterbrooks, 2014; Belsky, 1993; Bronfenbrenner & Morris, 2006).

In terms of characteristics of adolescents, the most obvious and consistently present difference between adolescents and adult participants in SC is parental age. Recent research that has illuminated how the developing brain impacts emotion, cognition, and behavior is particularly important to understanding how being young impacts adolescent parents. Evidence has accumulated demonstrating that neurological maturational processes once thought to be completed by the end of childhood continue into late adolescence and the period of emerging adulthood (e.g., Giedd et al., 1999). We now know that brain development in regions key to the regulation of behavior and emotion and to weighing risks and rewards are biologically underdeveloped in adolescents when compared to adults (Steinberg et al., 2009). These brain regions are essential for the psychological and social characteristics and skills that behavioral parent training programs intend to promote, such as modulating one’s affect to increase the level of positive expressions towards infants. Thus, knowledge of how adolescent brain development makes adolescents characteristically different from adults is particularly important to understanding adolescent parenting and informing potential adaptations of SC for use with adolescents (Barrett & Fleming, 2011).

Despite not being developed specifically for use with adolescent parents, there are several compelling reasons why SC may be well-suited to meet the needs of this population. Importantly, the intervention addresses risk factors for maltreatment that are often characteristics of adolescent-led families. SC provides skills-based training in ways to interact verbally with infants, display positive and affectionate behavior towards infants and children, respond to infant and child behavior, and respond to infant and child health care

needs, each of which are elements of interactional patterns that research demonstrates adolescents lack skill in when compared to adult mothers (Koniak-Griffin et al., 2002; Rafferty, Griffin, & Lodise, 2011). Importantly, the intervention also addresses some of the unique challenges that exist within interactions between the individual adolescent parent and the context of important systems, such as the family. Home-based intervention is ecologically valid by design, minimizing generalization issues that may occur in clinic settings (Guastafarro et al., 2012). This is especially important when delivering services to adolescent parents, as they often live with their children's grandparents, so applying skills from therapy in the home environment can be complicated by tensions or disagreements related to caregiving responsibilities in a multigenerational family (Black & Nitz, 1996; Black, Siegel, Abel, & Bentley, 2001). SC is an inclusive intervention and includes all caregivers (including grandparents) in the home if they agree to participate in treatment. Further, SC is delivered in the parent's homes, which could reduce contextual barriers that adolescents face when enrolling in and attending services, such as being too young to drive, not having access to transportation, or clinic schedules that interfere with school.

The examination of the effects of SC with a subpopulation of adolescent parents attempts to fill a gap in the literature related to the ability of interventions delivered to child welfare-involved families to reduce child abuse and neglect recidivism. For the general population of child welfare involved families, there is considerable evidence regarding the effectiveness of behavioral-parent training (Barth & Liggett-Creel, 2014). However, we were unable to locate any published trials or studies specifically examining outcomes of these programs among adolescent parents involved with child welfare. Further, the California Evidence-Based Clearinghouse for Child Welfare (CEBC), an online searchable database for identifying programs relative to child welfare practice, summarizes expert panel reviews of available outcomes research on 237 programs relevant to child welfare (Wilson & Alexandra, 2005). The CEBC identifies 10 programs as supported by promising research evidence (a rating of 3), supported by research evidence (a rating of 2), or well-supported by research evidence (a rating of 1) in terms of their ability to prevent child abuse and neglect recidivism for high risk families (e.g., secondary prevention). SC received a scientific rating of 2 by the CEBC. Of the 10 evidence-based secondary prevention programs identified by the CEBC, no outcomes research has been published that specifically examines outcomes for families led by adolescent parents.

SC has been disseminated and utilized in at least 23 states, as well as internationally in six other countries (Rostad, Lutzker, & Guastafarro, 2016; Shenley et al., 2013). Given this widespread dissemination and the risk factors for abuse and neglect often present in adolescent-led families, SC is implemented with a sizable number of adolescent parents. Therefore, it is critical to understand whether the program is effective for use with adolescent-led families involved with child-welfare, and particularly useful for practitioners and policy makers that serve this vulnerable population. Research on adolescent development provides reasons to consider that SC may need to be adapted to meet the specific needs of this subpopulation of parents, however, quality attempts to adapt interventions should be based on careful consideration of evidence regarding the use of the established intervention with the new target population (Baumann et al., 2015). If adolescent

parents do not respond to SC like adults, adaptations to the program may be necessary to make it well-suited for and effective with adolescent parents.

In addition to providing insight into the treatment needs of maltreating adolescent parents in general, results of this study may also be helpful in filling a gap in the literature related to how to best meet the needs of parenting youth involved in or aging out of the child welfare system due to abuse they experienced in their own childhoods. While adolescents often receive services focused issues such as obtaining housing, education, and employment prior to exiting the child welfare system, very few programs for young mothers in the child welfare system address parenting and there are no studies of the outcomes of these programs (Geiger & Schelbe, 2014). Understanding if an intervention such as SC meets the needs of adolescent parents could inform practice and policy related to providing effective services when two or three generations of a family is currently involved in child welfare.

The goal of the current study was to examine whether SC was effective in preventing child welfare recidivism for adolescent parents. The current study is a secondary analysis of data collected in a statewide controlled trial of the SC intervention completed in Oklahoma by Chaffin et al. (2012b). This study examines outcomes for a subsample of 294 adolescent parents who participated in the Oklahoma trial. We also examined changes in known risk factors for child maltreatment including child abuse potential and depression, as these risk factors often decrease when parents participate in home-based interventions designed to target maltreatment and are indicators of parental well-being (Chaffin & Bard, 2011). For the overall sample in the statewide controlled trial, significant main effects in favor of SC compared to typical home-based child welfare services were reported (Chaffin et al., 2012b). As stated previously, while there are multiple reasons to assume that SC is an effective intervention for child welfare involved adolescent-led families, adolescent-specific needs may not be met by the intervention given the especially high level of maltreatment risk present in adolescent-led families.

A secondary aim of the current study was to examine adolescent parent ratings of program engagement (i.e., quality of working alliance or collaborative relationship with home visitor), service satisfaction, and perceived cultural competency of services. These may be important contributors to program effectiveness given that participants need to be engaged and actively participate to benefit from program content. In the statewide trial of SC, it was encouraging that participants in the SC group reported higher levels of working alliance, service satisfaction, and cultural competency than participants in the services as usual group (Damashek, Bard, & Hecht, 2012). Further, in an examination of cultural competence among American Indian parents included in the statewide trial, high consumer ratings of cultural competency, working alliance, service quality, and service benefit were detected (Chaffin, Bard, Bigfoot, & Maher, 2012a). However, these data have not been examined specifically for the adolescent parent subsample. Findings from the current study will illuminate whether the SC model was a good fit for and well-received by the adolescent parent subsample.

2. Method

2.1. Participants

Participants in the current study were a subpopulation of 294 adolescent parents (21 years or younger) drawn from a statewide controlled trial of the SC home visiting model in Oklahoma (Chaffin et al., 2012b). We chose to include parents younger than age 21 with children who were primarily preschool aged (rather than restricting the sample to parents age 19 or younger during the time of the intervention) so that we could examine effects of the intervention for a sample that included both parents who were currently adolescents and parents who had entered young adulthood but had become parents during their adolescent years. Parents were eligible if they were referred to community-based agencies under contract with the child welfare system and were not sexual abusers. The average age of participants was 19.6 (SD = 1.4) years and all were the primary caregiver, most of whom were women (98%) and white (63%). On average, the sample had 1.8 (SD = 1.4) prior reports to child welfare services. Most of the adolescent subsample had at least one prior child welfare referral for neglect (86.7%) and many had two or more (42.1%); 27.9% of the sample had at least one prior referral for physical abuse. Most participants were never married (41.8%), married (22.4%), or living with a partner (22.1%). On average, participants had 2.0 children, most of whom were preschool-aged. Few participants had any education beyond high school (11.3%), and most were below the poverty line (88.1%). The project was approved by the Institutional Review Board at the University of Oklahoma Health Sciences Center, and received privacy assurances through a Federal Privacy Certificate.

2.2. Design and procedure

The subpopulation was drawn from a system of home-based services implemented in community-based agencies under contract with child protective services from September 30, 2003 to October 1, 2006. Nonsexual abusing parents who presented to the agencies were referred for mandatory services, and one caregiver per household (preferably the primary caregiver) was enrolled in the program. Shortly after enrollment, a research assistant visited the household to recruit the family into the study; in the overall sample, 72% of approached families enrolled in the study.

Using a cluster randomized design, agencies/regions ($n = 6$) in Oklahoma were randomly assigned to deliver SC or home-based services as usual. The two urban regions were randomized to condition first, and the four remaining agencies/regions were randomized to condition based on which assignment arrangement achieved the best balance in pre-intervention demographic characteristics. Thus, each home visitor in a given agency/region delivered either SC or services as usual to their designated families. Further details of randomization and conditions are described in Chaffin et al. (2012b). In the current study, for home visitors ($n = 133$), 77 were assigned to SC and 56 to services as usual. For the adolescent subpopulation, 162 participants were assigned to SC and 132 to services as usual. Services delivered in SC and services as usual were comparable, including the home-based format, caseloads, service duration (6 months), frequency of sessions (weekly), goals, workforce qualifications, case management procedures, reporting requirements, assessment tools, and funding. All home visitors were trained in motivational interviewing and safety

planning in the case of domestic violence, and had access to funds to help families in times of concrete needs crises. The major differences between SC and services as usual were SC's module content (parent-child interaction, home safety, child health) and materials, structure, and behavioral components (e.g., home visitor modeling and in-session parent practice).

2.3. Treatments

2.3.1. SafeCare (SC)—SC is a manualized, structured behavioral parent training intervention that focuses on parent's knowledge of healthy child development and identification of children's illnesses and symptoms to determine when professional healthcare is needed (child health component); parent/child or parent/infant interactions, basic caregiving structure, and parenting routines (parenting component); and reducing filth and hazards in the home that put children at risk of injury (home safety component) (Lutzker & Bigelow, 2002). SC can be delivered as a stand-alone intervention or as a component of a broader home visiting service (as was the case in this study). SC providers completed a one-week workshop training with live skill demonstration and role-play activities, followed by one directly observed field session and regular clinical supervision, as well as ongoing fidelity monitoring.

2.3.2. Services as usual—Providers of parents in the services as usual (services as usual) condition were observed in the field by study investigators for descriptive purposes. Parents in the services as usual condition received the same type and dose (at least weekly visits) of home-based services that addressed comparable service goals and issues, though they were delivered in a less structured manner and did not include SC content modules on parent-child interactions, home safety, and child health. Instead, services were more oriented around discussion and did not include the behavioral components present in SC.

2.4. Measures

Participant self-report, home visitor report, and administrative data were used to measure study constructs. Self-report measures were completed using computer assisted touch screen interviewing devices, administered by a trained data collector. Assessments were administered at three waves: pre-treatment; post-treatment; and 6-month follow-up. Results were kept confidential and were not shared with service providers or the child welfare system. Participants completed a survey assessing basic demographic information, the parent-child relationship, and their experience in services.

2.4.1. Child abuse potential—Potential for child abuse and parenting distress were measured using the abuse and distress subscales of the Child Abuse Potential Inventory (CAPI; Milner, 1994). The CAPI is a standardized self-report measure of attitudes and behaviors related to child mal-treatment. Example items include "Spanking that only bruises a child is okay" and "I often feel worried." Participants indicate whether they agree or disagree with each statement. The reliability calculated for the adolescent subsample demonstrated high internal consistency ($KR-20 = 0.92$).

2.4.2. Child welfare recidivism—Child welfare administrative data (including prior child welfare entry) were used to track child welfare re-entry, defining a re-entry event as a

report involving the parent as the perpetrator of physical abuse, neglect, aggregated across maltreatment types, children, and report dates to yield unduplicated events. Recidivism was measured as time to event (i.e., a subsequent report to child welfare) in days, beginning at program enrollment. All types of reports (i.e., physical abuse, neglect, sexual abuse), regardless of substantiation, were included. For some reports, the time to event was suspiciously low for two reports to be made (e.g., 7 days), and thus, any value less than 30 days were removed and the time to event for the subsequent report was used.

2.4.3. Depressive symptoms—The Beck Depression Inventory (BDI; Beck, Steer, & Carbin, 1988), comprised of 21 items, was used as a measure of depression within the study sample. Participants are prompted to indicate which statement out of a group most accurately reflects their feelings in the past two weeks (e.g., “I do not feel sad,” “I feel sad much of the time,” “I am sad all the time,” and “I am so sad or unhappy that I can’t stand it”). In the current sample, the scale had high internal consistency, calculated at 0.94.

2.4.4. Goal attainment—Another indicator of service outcomes was the extent to which participants achieved goals set with their home visitor prior to services. Following service completion, the home visitor rated the extent to which the participant attained pre-service goals related to safety threats that brought the family into the child welfare system (e.g., dirty home, parental substance use, insufficient parental supervision). Goal attainment was coded as full, partial, or no goals met.

2.4.5. Program engagement—The current study also sought to examine whether SC services were superior to services as usual with regard to program engagement and satisfaction. Upon program completion, the Working Alliance Inventory was used to measure service engagement (WAI; Horvath & Greenberg, 1989). The WAI is a 36-item scale that measures three aspects of the therapeutic relationship including agreement on therapeutic tasks, emotional bond, and agreement on therapeutic goals. Internal consistency for the WAI has been reported in the literature between 0.83 and 0.97 (Hanson, Curry, & Bandalos, 2002; Horvath & Greenberg, 1989) and has demonstrated good reliability with adolescent samples (Kazdin, Marciano, & Whitley, 2005; Winterstee, Mensinger, & Diamond, 2005).

2.4.6. Program satisfaction—Two surveys were used as indicators of program satisfaction. The Client Satisfaction Survey (CSS; Chaffin et al., 2012a) was used to measure participant satisfaction with services. The CSS was created to assess the extent to which parents perceived home-based services to be helpful for their family. The questionnaire includes items reflecting the process and outcome goals of home visiting services. The second indicator of client satisfaction was the Client Cultural Competence Inventory (CCCI; Switzer, Scholle, Johnson, & Kelleher, 1998), a self-report measure that assesses perceptions about the cultural competence of services. The CCCI was developed to assess competency across diverse cultures and has a reported Cronbach’s alpha of 0.76 (Switzer et al., 1998). The CSS and CCCI were both administered after the intervention.

2.5. Statistical approach

To examine whether SC was specifically effective for adolescent parents, child welfare recidivism was analyzed using a two-level (clients [$n = 294$] within home visitors [$n = 133$]) Cox proportional hazards survival analysis, accounting for home visitor cluster and incorporating county report proneness (rate of countywide reports to child welfare prior to enrollment) and a historical recidivism risk indicator (an estimate of recidivism risk outside the context of the study) as control variables, as described in the Chaffin et al. (2012b) study. It should be noted that caseworker reporting policies may have changed over the course of the study and there may have been multiple entries for the same report (e.g., caseworker entered information about one report at multiple times). We tried to account for these errors by excluding information for a report that occurred less than 30 days from baseline or a previous report; this time frame was chosen given that most state policies permit at least this much time to complete an investigation. In addition, the influence of treatment model (SC vs. services as usual) on child abuse potential, depression, and parenting stress was tested using two-level growth curve models with three time points by employing maximum likelihood estimation with robust standard errors in MPlus 7.2 software. Program engagement, satisfaction, and goal attainment were tested using two-level models (accounting for home visitor cluster) regressing outcome variables on treatment model, also using maximum likelihood estimation.

3. Results

No significant demographic differences were detected between adolescent parents who received SC and those who received services as usual, and thus, no demographic variables were controlled for in subsequent analyses (see Table 1). In the unconditional growth model for abuse potential, a marginally significant decrease ($\beta = -1.69, p=.09$) was detected. When including treatment model in the latent growth curve model, no significant treatment effect ($\beta = -1.13, p=.26$) was observed in this adolescent subsample. No significant changes were detected for parenting stress in the unconditional model ($\beta = -1.28, p=.20$); in the conditional model, no effect was detected for treatment model ($\beta = -0.69, p=.49$) in the adolescent subsample. A significant decrease in depression was detected in the unconditional model ($\beta = -2.24, p=.03$); no effects for treatment model ($\beta = -0.39, p=.70$) were observed in the conditional model for this adolescent subsample (see Table 2).

3.1. Program engagement

Most participants reported high scores on the WAI, producing a negatively skewed distribution for the WAI, and thus the distribution was divided into four ordered categories. The estimate for whom WAI's were obtained ($N = 149$) was not statistically significant for treatment model ($\beta = -0.29, p=.78$) within this adolescent subsample.

3.2. Program satisfaction

Client satisfaction was also high among adolescent participants and thus, the distribution for the CSS was divided into categories. The estimate for treatment model ($\beta = -0.31, p=.75$) predicting client satisfaction (i.e., CSS) was not significant participants from whom satisfaction scores were obtained ($n = 150$) in the adolescent subsample. A second indicator

of program satisfaction was participants' perceived cultural competence of services (CCCI; Switzer et al., 1998). No significant effect for ment model ($\beta = -0.15$, $p=.88$) on participants' perceptions of culturally competent service delivery was detected among lescent participants who completed the CCCI ($n = 150$).

3.3. Home visitor-reported goal attainment

Perhaps a better indicator of program benefit than the CAPI or BDI is the extent to which the participant met his or her goals, as rated by the home visitor. No significant differences between SC and services as usual ($\beta = -0.37$, $p=.71$) were observed for goal attainment within the adolescent subsample rated by their home visitors ($n = 159$).

3.4. Child welfare re-entry

No significant differences in recidivism were detected between SC and services as usual among adolescent caregivers controlling for county report proneness and risk of recidivism (estimate = -0.15 , $p=.423$, HR=0.86, 95% CI = 0.59, 1.25). those meeting customary SC inclusion criteria (at least one preschool-aged child and no current untreated substance use disorder; $n = 238$), the estimate was also not significant (estimate = -0.20 , $p=.33$, HR = 0.82, 95% CI: 0.55, 1.22) after controlling county report proneness and risk of recidivism.

4. Discussion

The overall purpose of this study was to examine how the SC intervention compared to services as usual (which included 6 months of service with weekly visits, but did not include the SC curriculum) for adolescent parents involved with child welfare in Oklahoma. Among the subsample of adolescent-led families examined in this secondary data analysis, the SC intervention did not result in significantly improved outcomes in terms of prevention of recidivism or reduction in risk factors associated with child maltreatment as compared to the child welfare services as usual. Marginally significant, overall improvement was noted on the CAPI for the adolescent parent participants, however the amount of improvement was not significantly different across treatment conditions (SC and services as usual).

In addition, depression decreased significantly for adolescents in each treatment condition. Parenting stress did not decrease significantly across treatment for adolescents in either treatment group. No significant differences in child maltreatment recidivism were observed when comparing adolescents in treatment conditions. These findings are discrepant from results of the examination of recidivism and risk for the overall sample, which found consistently significant main effects in favor of SC, though the hazard ratio detected for the adolescent subsample who met customary SC inclusion criteria (at least one preschool-aged child and no current untreated substance use disorder) was within the range reported in the original trial (0.74–0.83) (Chaffin et al., 2012b). The current study's findings also differ from results of a study that examined recidivism and risk for a subpopulation of 354 American Indian parents drawn from the same larger trial utilized for the current investigation (Chaffin et al., 2012a). Among the American Indian subpopulation meeting traditional SC inclusion criteria, significantly greater reductions in recidivism and maternal

depression were found for participants in SC, although improvement on the CAPI was equivalent across treatment conditions.

In terms of treatment satisfaction, no significant differences emerged between treatment groups for adolescent parent rated acceptability, though satisfaction was high for both groups. The adolescent parent subsample did not appear to find the structured, manualized, behavioral SC module to be more acceptable or engaging than services as usual. This is also inconsistent with findings from the larger trial and the examination of the American Indian subpopulation, in which participants found SC services to be of higher quality, more beneficial, more culturally competent and to produce a better working alliance with their home visitor. Adolescent parents tended to provide high consumer ratings of service, regardless of treatment condition, which may be the result of the relatively low rate of treatment attrition (e.g., adolescents who were dissatisfied with treatment may have been more likely to drop out of services and, therefore, less likely to complete measures of treatment satisfaction). Alternatively, given the high quality of services as usual, adolescent parents may have found both types of services beneficial, regardless of structure or content.

Several potential hypotheses exist for the non-significant differences in treatment groups among the adolescent subsample. First, it is important to consider that this comparative study is a very conservative test. In the services as usual condition, adolescents did not receive any SC treatment, but did receive 6 months of weekly child welfare services, which is a more intensive package of services than many states offer within their child welfare services as usual (Chaffin et al., 2012b). Thus, if compared to services as usual in other states or communities, there is a possibility that positive results would emerge in favor of SC. Second, it is difficult to know what the family context support was for adolescent parents participating in an intervention. If the adolescent parents did not receive support from members of their family living in their homes, particularly their children's grandparents, for improving safety in the home, or engaging in positive parenting skills that are the target of the SC program, these factors may have influenced positive outcomes. Finally, it should be noted that there were significant differences in demographic risk between the adolescent parent subsample and parents older than 21 years in the larger trial. Adolescent parents earned less income, were less educated, and less likely to be married or living with a partner than older parents, which may have limited their capacity to engage in and benefit from a structured, behavioral intervention. Further testing of SC with adolescent parents is necessary to clarify these possibilities.

There is also the possibility that the significant developmental differences between adolescents and adults in regards to brain development and behavior affected the outcomes of the interventions, making it so SC was less likely to produce positive effects compared to services as usual. Advances in neuroimaging technology and longitudinal research using this technology have changed our understanding of how maturation and experience affect adolescent brain development and, in turn, adolescent behavior (Casey, Jones, & Hare, 2008). Neurodevelopmental science has led to the understanding that adolescents weigh the benefits of risky or irresponsible behavior more heavily than the benefits of alternative, safe or responsible behaviors (Steinberg et al., 2009).

Interventions to improve adolescents' abilities to care for their children focus on a set of behaviors that require a great deal of judgment and impulse control while being heavily socially and emotionally influenced (Strassberg & Treboux, 2000). Thus, the additional structure and skills based training provided by SC in comparison to services as usual may not have been effective in encouraging safe and responsible parenting behaviors among the adolescent parents (Steinberg et al., 2009). Future adaptations might consider differences in neurodevelopment among adolescents and adults when developing and implementing interventions with adolescents. For instance, for adolescent parents, it may be important to scaffold the development of parenting skills through positive reinforcement delivered as a component of treatment directly following observed improvement in skill.

Furthermore, significant advances in technology have occurred since the development of the SC intervention. Given that adolescents routinely use, and often prefer, the internet and technology to access health information (Borzekowski & Rickert, 2001; Fox & Duggan, 2013), primary utilization of an in-person intervention may not be the most effective option for adolescents. Recent advances in technology have found web-based interventions to be extremely effective among adolescents for a range of behavioral health issues (Free et al., 2013; Lau, Lau, Wong, & Ransdell, 2011), including high-risk populations such as victims of disaster and interpersonal violence (Ruggiero et al., 2015) and adolescents at high risk for HIV (Noar, Black, & Pierce, 2009). Technological augmentations have been developed for SC in which materials could be delivered via a tablet (Self-Brown et al., 2017) and have recently been used with unique populations, such as fathers (Rostad, Self-Brown, Boyd, Osborne, & Patterson, 2017; Self-Brown et al., 2015). Preliminary studies find that the use of technology in the delivery of SC is feasible and acceptable among parents and home visitors (Rostad et al., 2017; Self-Brown et al., 2017). It is important to understand whether similar adaptations may be necessary for adolescents.

Another important consideration is that reducing recidivism among the subpopulation may have been especially difficult as adolescent parents were significantly more likely to be dismissed from services for three consecutive missed sessions than older parents and experienced significantly greater levels of demographic risk factors. Among the larger population of child welfare involved families, which is an economically disadvantaged, chronically stressed, and highly transient population, adolescent parents experience especially high risk (Chablani & Spinney, 2011). Given this high level of risk, it may be the case that adolescent parents need additional services, focused on increasing treatment attendance and issues such as fertility planning, educational and employment attainment, or social support. Fertility planning, in particular, appears to be an important mediator of the relationship between preventative intervention and reduction on child abuse and neglect for high-risk families led by young mothers (Eckenrode et al., 2017). Previous research has demonstrated that simply adding an additional array of services to behavioral parent-training interventions is ineffective in improving treatment outcome, perhaps because additional services dilute the impact of interventions that are effective (Chaffin et al., 2004). However, while additional services may dilute the effects of an intervention well suited to the needs of a population, it appears that the changes suggested above may be necessary to make SC a potent intervention for adolescent parents.

Among the many possible targets of additional services that could be added to a program modified specifically to meet the needs of adolescent parents, repeat pregnancies are particularly malleable when compared to systemic risk factors such as poverty; behavioral health interventions, especially those that promote the use of long-acting, reversible contraceptives, have been demonstrated as effective in reducing repeat pregnancy among at-risk adolescents (Black et al., 2006; Barnett et al., 2009; Stevens-Simon, Kelly, & Kulick, 2001). Further, in one of the most important demonstrations of the mechanisms through which preventive interventions decrease child maltreatment, Olds et al. (1998) demonstrated that an intensive pre- and post-natal home-visiting intervention reduced subsequent conception rates and, later, occurrence of child maltreatment among low-income, first-time mothers. Taken together, findings on outcomes associated with, and interventions intended to reduce the public health problem of repeat adolescent pregnancy indicate that fertility planning aimed at reducing repeat teen pregnancy could be a service that might increase the effectiveness of a treatment package delivered to child welfare involved adolescent parents.

4.1. Limitations

Limitations must be taken into account when interpreting findings. First, results should be considered in the context of changing procedures and potential errors in data entry, as caseworker reporting policies changed over the course of the study and there may have been multiple entries for the same report (e.g., caseworker entered information about one report at multiple times), although we tried to account for some of these errors. Second, the sample size for the subpopulation of adolescent-led families, 294, was much smaller than for the overall sample, which may have impacted results of the study. However, well-established literature has demonstrated that this sample size is large enough to conduct the analyses utilized in this study (Curran, Obeidat, & Losardo, 2010). In addition, the data used in this study originated from the original SC trial conducted ten years ago, and thus results should be considered in the potentially changing context of adolescent parenthood. Finally, adolescent specific constructs (e.g., adolescent social support, stigma, technology and social media use) were not measured in the overall study, as the aim was not to target adolescents. Future studies should examine adolescent-specific variables as they relate to the effectiveness of this intervention.

4.2. Conclusions

Findings from this study contribute to the literature by demonstrating that SC, an evidence-based parenting intervention found to reduce risk for child maltreatment among parents referred through child welfare, did not appear to be more effective than services as usual in a secondary data analysis focusing on a subsample of adolescent parents. These results highlight the importance of adapting and developing interventions specifically targeting adolescent parents, potentially based upon neurodevelopmental differences, a preference for technology-based resources and additional services needs specific to adolescents, such as fertility planning designed to reduce repeat adolescent pregnancy. Researchers and clinicians should aim to identify and/or develop interventions that address the needs of adolescent parents, as they may be significantly different from those of adult parents. Developing and testing such interventions could help reduce the risk for child maltreatment among this high

need population of adolescent parents, who often face multiple negative consequences and risk factors that impact their own well-being, as well as the well-being of their children.

In addition to pointing to the need for specialized services within the population of adolescent-led families, results of this study also highlight the need for primary prevention of the risk factors that lead to abuse and neglect. The effectiveness of interventions including SC that address parenting are limited when broader contextual risk factors are present, especially those prevalent among adolescent-led families such as low levels of education, under- or un-employment, and lack of access to adequate housing (Elfenbein & Felice, 2003). Close to 90% of the adolescent parents in the subsample examined in this study reported income below the federal poverty line. In combination with knowledge of contextual risks common among adolescents, many members of the sample may have experienced stressors that undermined the effectiveness of an intervention focused on parenting and heightened risk for prolonged involvement with the child welfare system (Prinz, 2016). Increasing the prevalence of population-wide interventions with goals such as strengthening economic supports for families, changing social norms to support parents and positive parenting, and providing quality care and education early in life are likely necessary to reduce the prevalence of child maltreatment among adolescent and adult parents alike (Fortson, Kleven, Merrick, Gilbert, & Alexander, 2016). With these types of universal supports in place, interventions such as SC will be needed less often, but may also be more effective when indicated and used with families with multi-problem needs (Prinz, 2016).

The findings and conclusions in this paper are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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Table 1

Sample Characteristics by Treatment Condition.

	Services as usual (n = 132)	SafeCare (n = 162)	p-value ^a
Age	19.73	19.56	.301
% Female	98.5	98.1	.824
Race			.718
% White	65.2	61.5	
% American Indian	12.9	18.6	
% African American	11.4	10.6	
% Hispanic	6.1	6.2	
% Other	4.5	3.1	
Relationship status			.124
% Married	29.5	17.1	
% Living together	22.7	22.2	
% Separated	6.8	8.2	
% Divorced	4.5	5.1	
% Never married	36.4	47.5	
Education			.156
Less than 9 th grade	9.1	14.9	
9 th to 12 th grade	45.5	49.7	
High school diploma/GED	32.6	25.5	
Some college	9.1	8.1	
Vocation-technical school	3.0	1.9	
% Below Poverty Line	87.9	88.3	.910
Number of children	1.93	2.04	.481
Age of youngest child	1.01	1.02	.729
Prior child welfare referrals	1.71	1.84	.439
Depression	12.43	12.82	.773
Abuse Potential	159.36	165.21	.646
Parenting Distress	97.73	100.94	.737

*Note: BDI = Beck Depression Inventory; CAPI = Child Abuse Potential Inventory.

^aIndependent samples t-test for age, number of children, age of youngest child, prior child welfare referrals, depression, abuse potential, and parenting distress; Chi-square test for gender, race, relationship status, and below poverty line

Table 2

Primary Outcomes for Full Sample and by Condition (SD).

	Full sample (N = 294)	Services as usual (n = 132)	SafeCare (n = 162)	p-value ^a
Abuse potential (CAPI)				
Time 1	162.55 (107.87)	159.36 (106.49)	165.21 (109.27)	.65
Time 2	132.98 (99.79)	116.32 (88.10)	149.87 (108.37)	.04
Time 3	117.34 (90.48)	123.75 (95.33)	109.39 (84.44)	.43
Parenting stress (CAPI)				
Time 1	99.49 (80.85)	97.73 (80.61)	100.94 (81.27)	.74
Time 2	77.19 (73.42)	64.38 (64.49)	90.17 (79.84)	.03
Time 3	68.93 (70.65)	73.63 (72.72)	63.11 (68.35)	.46
Depression (BDI)				
Time 1	12.65 (11.43)	12.43 (10.76)	12.82 (11.98)	.77
Time 2	10.28 (10.36)	8.81 (9.45)	11.80 (11.08)	.08
Time 3	8.30 (8.67)	8.94 (9.68)	7.50 (7.26)	.39
Program engagement (WAI)	4.57 (1.44)	4.58 (1.52)	4.56 (1.36)	.93
Program satisfaction (CSS)	3.38 (.63)	3.35 (.73)	3.41 (.51)	.58
Cultural competency (CCCI)	4.18 (.80)	4.19 (.90)	4.17 (.69)	.88
Goal attainment (% Full)	54.1	53.2	54.9	.32 ^b

*Note: CAPI = Child Abuse Potential Inventory; BDI = Beck Depression Inventory; WAI = Working Alliance Inventory; CSS = Client Satisfaction Survey; CCCI = Client Cultural Competency Inventory.

Bold text indicates a statistically significant difference with a p-value less than 0.05.

^aIndependent samples *t*-test.

^bChi-square test.