Published in final edited form as:

J Child Fam Stud. 2019 July ; 28(7): 1780–1789. doi:10.1007/s10826-019-01369-w.

Modification to a systematically braided parent-support curriculum: Results from a feasibility pilot

Kate Guastaferrero^a, Katy Miller^b, Betty S. Lai^c, Jenelle Shanley Chatham^b, Allison Kemner^d, Daniel J. Whitaker^b, John R. Lutzker^b

^aThe Methodology Center, The Pennsylvania State University, University Park PA

^bThe Mark Chaffin Center for Healthy Development, National SafeCare Training and Research Center, Georgia State University, Atlanta GA

^cSchool of Public Health, Georgia State University, Atlanta GA

^dParents as Teachers National Office, St. Louis MO

Abstract

Objectives: There are a variety of parent-support programs designed to improve parenting and, thereby, the safety and well-being of children. Providers trained in multiple programs are likely to select components of interventions they feel will meet the needs of the families they serve leaving out aspects they deem unnecessary or redundant. In so doing, the fidelity of the evidence-based program is at risk. A potential solution is *systematic braiding* in which evidence-based programs are combined such that the fidelity to each original model and its implementation are maintained.

Methods: Drawing on qualitative feedback from a prior iteration, this paper discusses results of a feasibility and acceptability pilot of a modified version of the systematically braided *Parents as Teachers and SafeCare at Home (PATSCH)* curriculum. This modification removed a provider-perceived “redundant” portion from the original PATSCH curriculum. A pre-post design ($N=18$) was used to evaluate the efficacy of the modified curriculum.

Corresponding Author: Kate Guastaferrero, Ph.D., The Methodology Center, The Pennsylvania State University, 418 Health and Human Development Building, University Park, PA 16802, Kmg55@psu.edu.

Author contributions

KG: designed and executed the study, conducted data analyses, and wrote the manuscript. KM: executed the study and reviewed the final manuscript. BSL: oversaw data analysis and reviewed results section of the manuscript. JSC & DJW: collaborated with the design of the study and assisted with editing the final manuscript. AK: collaborated in the editing of the final manuscript. JRL: designed and oversaw the execution of the study and collaborated in the editing of the final manuscript.

Publisher's Disclaimer: This Author Accepted Manuscript is a PDF file of an unedited peer-reviewed manuscript that has been accepted for publication but has not been copyedited or corrected. The official version of record that is published in the journal is kept up to date and so may therefore differ from this version.

Conflict of Interest:

J.R. Lutzker is the developer of SafeCare. All authors report no conflict of interest.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Georgia State University Institutional Review Board provided approval for this study.

Informed consent

Informed consent was obtained from all individual participants included in the study.

Results: Significant improvements were seen in trained parent behaviors surrounding home safety and child health. There was also improvement in self-reported parenting behaviors, the portion of the braided curriculum removed, suggesting that the PAT curriculum adequately teaches these skills. Providers and parents were highly satisfied with the modified curriculum.

Conclusions: If a curriculum is modified to reflect provider and parent preferences, then the potential for delivery without fidelity is minimized.

Keywords

systematic braiding; modification; intervention; parenting; child maltreatment

A number of evidence-based parent-support programs are implemented as preventive efforts with the shared goal of promoting positive parenting and improving the safety and well-being of children and families. Yet, no single program can necessarily meet all families' needs. It is possible that many parents ultimately receive multiple programs, consecutively or concurrently (Aarons & Palinkas, 2007). Providers trained in multiple programs may self-select components from different models they feel best meets the needs of families in their caseload (Aarons et al., 2012). This self-selection and adaptation may be done without direction from model developers and without empirical examination of the synergistic or antagonistic relationship between intervention components. This threatens the fidelity of the programs, while also being potentially duplicative for providers, costly for agencies, and burdensome for parents and families. One potential solution to this inefficiency is *systematic braiding*, in which two models with complementary foci are combined while maintaining fidelity to their respective curricula and implementation protocols (Guastafarro, Miller, Lutzker, et al., 2017). Systematic braiding allows for the content of two models to be implemented in synchrony such that the content of one model might fill in voids in the other model, and vice versa. In addition to integrating content, braiding involves the incorporation of each model's implementation paradigm (i.e., fidelity monitoring procedures). The goal of braiding is to streamline and systematize the implementation of multiple curricula simultaneously as opposed to simply adding one intervention to another such that multiple parenting needs can be satisfied, but without sacrificing fidelity to the program.

This study focuses on outcomes from the systematic braiding of two evidence-based home-based parent-support models, Parents as Teachers® (PAT; Albritton, Klotz, & Roberson, 2003) and SafeCare® (Guastafarro & Lutzker, 2017; Rostad, Lutzker, & Guastafarro, 2016). PAT is delivered to parents of children under five and focuses on parent-child interaction, development-centered parenting, and family well-being through personal home visits, group connections, health screenings, and referral to resource networks (Table 1). Providers may serve multiple children within a family and, therefore, families may be served for multiple years, but at a minimum are served for at least two years between pregnancy and kindergarten. PAT has demonstrated positive effects on child and parent outcomes related to school readiness (Zigler, Pfannenstiel, & Seitz, 2008). SafeCare is a home-based parent-support program also delivered to parents of children under five, but consists of three modules including home safety, child health, and parent-child/infant interaction (Table 1). The modules are comprised of six sessions each and families complete the curriculum in approximately 18 weeks, based on mastery of the material. SafeCare has demonstrated

effectiveness in improving parenting behaviors and reducing recidivism rates in child welfare populations (Chaffin, Hecht, Bard, Silovsky, & Beasley, 2012). Where PAT was developed with a focus on school-readiness, the curriculum as designed did not specifically target risk factors for neglect. In contrast, where SafeCare was developed to prevent child maltreatment and includes information regarding age-appropriate behaviors, the curriculum does not focus on school readiness. The PAT and SafeCare models share the goal of improving parent-child relationships and the general well-being of children and the curricula logically complement one another even though the models differ in pedagogical approaches and theoretical underpinnings (Guastaferrero, Miller, Lutzker, et al., 2017). Systematic braiding makes it possible for a provider to deliver a greater breadth of content and thereby improve outcomes for those who receive it, while delivering the program with fidelity.

Sparked by a suggestion of a PAT State Leader that SafeCare might be able to address some important voids in the PAT curriculum, the developers of SafeCare and PAT created the braided curriculum, *PAT and SafeCare at Home (PATSCH)*. PATSCH sought to improve parent-child interactions, home safety, and child health in the context of the PAT model (Guastaferrero, Miller, Lutzker, et al., 2017; Guastaferrero, Miller, Shanley Chatham, et al., 2017). The idea was that the relationship between a parent and PAT provider would benefit the implementation of SafeCare modules, and that the SafeCare modules would provide foundational skills in content not explicitly included in the PAT curriculum. It was believed that the integration of these two models would benefit the children and families who received the braided curriculum compared to those who received typical PAT – that more needs would be met and risk factors reduced with PATSCH compared to PAT. To our knowledge, this was the first effort to braid two evidence-based parent-support models.

The rationale and process of systematically braiding the PAT and SafeCare models into the PATSCH curriculum has been detailed elsewhere (Guastaferrero, Miller, Lutzker, et al., 2017; Guastaferrero, Miller, Shanley Chatham, et al., 2017). Briefly, PATSCH was designed to be embedded into the implementation of PAT. Parents enrolled in PAT received, at minimum, the first five foundational visits of PAT in which rapport was built and core parenting concepts were developed. Parents then began PATSCH, a brief period of more intense parent-education relying on the SafeCare curriculum. The parents received the three modules of SafeCare (i.e., home safety, child health, and parent-child/infant interaction) over the course of 4 sessions per module, total of 12 sessions (PATSCH Version 1; Table 1). Two sessions of each module were braided such that aspects of a typical PAT visit (i.e., parent-child interaction, development centered parenting, and family well-being) were implemented (Guastaferrero, Miller, Shanley Chatham, et al., 2017). This assured that all braided visits met fidelity requirements as specified by the PAT National Office. The other two sessions (i.e., the ones that were not braided) did not explicitly include the parent-child interaction, development-centered parenting, and family well-being aspects of PAT and, therefore, did not meet the requirement for those visits to count toward PAT. Content of the unbraided sessions touched on these aspects, but not to the level of a typical PAT session and therefore were not considered to meet fidelity criteria. At the conclusion of PATSCH, parents returned to typical PAT implementation.

PATSCH was implemented across three southeastern states between 2012 and 2016 as part of a cluster randomized controlled trial (RCT) designed to examine the effectiveness of PATSCH compared to PAT alone. Findings from the RCT found few significant differences between groups (Guastaferrero et al., 2018). There were no significant differences in the number of hazards in the home nor was there a difference in parents' ability to identify the correct health decision in a health-based scenario among those who received PATSCH compared to those who received PAT alone. Despite the lack of significant statistical findings indicating the effectiveness of PATSCH over PAT, parent educators who delivered PATSCH and parents who received it were vocal about the acceptability and utility of the curriculum. In particular, participants and parent educators of PATSCH found the home safety and child health modules highly relevant, but found the parent-child interaction module redundant with existing content of PAT (Guastaferrero et al., 2018). If a provider finds curriculum content to be redundant, it is possible they adapt the intervention content leaving out perceived redundancies and thereby affecting program fidelity and outcome (Barnett et al., 2018; Castro, Barrera, & Martinez, 2004). Given the unique design of this braided curriculum, an empirical question emerged: if the perceived redundant parent-child interaction content is removed from PATSCH, does it affect parent outcomes?

Based on the positive feedback from providers and parents that participated in the RCT (Guastaferrero et al., 2018), the PATSCH curriculum was adapted (PATSCH Version 2; Table 1) to include only the home safety and child health modules thereby reducing PATSCH to 8 sessions in total (from 12). The parent-child/infant interaction module was excluded from PATSCH Version 2 because the goal of the SafeCare module was closely aligned with the PAT parent-child interaction component and it was believed parents would not be left without these parenting skills if the module was not included in PATSCH. The feasibility and acceptability of the revised PATSCH curriculum (Version 2) was tested at two sites in Colorado, the results of which are reported herein. A feasibility pilot can inform the efficacy of an intervention, can be used to develop future research pursuits (i.e., effect size estimates), and provides an opportunity to pilot solutions to limitations of prior work. It was hypothesized that parents who received the adapted PATSCH curriculum would improve their home environment, knowledge of child health, and parenting behaviors.

Method

Participants

Five parent educators from two PAT sites were trained in the adapted PATSCH curriculum (Version 2). Participating parents were already engaged in the PAT program and had completed at least five PAT foundational program visits with their parent educator (similar to the original large-scale RCT). Eligible parents were those that had at least one child under five and were proficient in English. As this was a pilot, no power analyses were conducted to determine sample size. Instead, the sample was drawn from existing caseloads. Parent educators approached eligible parents on their caseload. A total of 19 parents on the parent educator's caseloads were eligible, 18 of whom completed baseline assessment and 16 completed post-intervention assessment. In families with multiple children under five, the parent educator and parent identified one child to be the target of PATSCH. All parents were

female with a mean age of 31.22 years ($SD = 6.00$; Range = 20 - 44), had an average of 2.33 children in the home ($SD = 1.08$), and the mean age of the target child was 3.17 years ($SD = 1.30$; Range = 1 - 5). The participants were primarily White (82%) and in a romantic relationship (94%); sixty-seven percent were married and 94% currently lived with their partner. Nearly 30% of the sample attained a high school diploma or equivalent as the highest level of education. The majority of the participants were unemployed (59%) and had a monthly household income less than \$3,350 (88%). Over 77% of the participants had an annual household income below \$50,000.

Procedure

The Georgia State University Institutional Review Board approved the research protocol. Due to available resources and time constraints, no control group was available. A pre-post experimental design was utilized. A local data collector was hired for each site in Colorado to conduct the research assessments pre- and post-intervention. Parent educators worked with the data collectors to schedule enrollment visits during which informed consent and baseline assessments were conducted. Parent participants completed a self-interview on a tablet and the data collector conducted a home safety assessment of three rooms in the home pre- and post-intervention. Data collector and self-interview data were collected using REDCap electronic data capture tools hosted at Georgia State University (Harris et al., 2009). Participants were incentivized with \$25 at each assessment. Session data were collected from each parent educator through a beta version of the SafeCare app, which was designed to eliminate paper copies of assessments in session. These assessments are a part of typical SafeCare intervention delivery to measure the change in parent skills at baseline to end-of-module, but were used here in conjunction with the research assessments to assess the effect of PATSCH as measured by the parent educator compared to the observations of a third party data collector. The PATSCH curriculum began following the pre-intervention assessment. In typical PAT implementation, a parent educator visits families one to two times per month; for the study period, visit frequency was increased to deliver PATSCH within the short timeframe. The average duration of intervention was 10 weeks. The post-intervention assessment followed the final PATSCH session.

PATSCH Program Description

PATSCH Version 2, the curriculum tested in the feasibility pilot described herein and moving forward referred to simply as PATSCH, consisted of four sessions each of the home safety and child health modules for a total of eight sessions (Table 1). These sessions follow the principles of Social Learning Theory (Bandura, 1977) and are structured such that the desired skill or behavior is first explained and modeled by the provider, then practiced by the parent who is given corrective feedback by the provider. The goal of the child health module was to teach parents a decision-making process related to the child's health needs based on signs and symptoms. The goal of the home safety module was to identify and remove hazards (e.g., choke, crush, poison, sharp, etc.) in the home. Although the modified braided curriculum did not include the parent-child/infant interaction module because of the perceived redundancy in the RCT, parents enrolled in the feasibility pilot still received the PAT curriculum emphasizing parent-child interactions. Parenting behaviors were measured to empirically inform its removal from the braided curriculum. Two of the sessions

permodule were braided, as in Version 1, such that the session included the parent-child interaction, development-centered parenting, and family well-being components of PAT. PATSCH in its entirety is a braided curriculum, but these two braided visits per module are important to point out as they explicitly met visit criteria with the PAT National Office. Parents enrolled in PAT and who had completed at least the first five foundational visits were eligible to participate in the research and receive PATSCH for the subsequent eight sessions (four of which were braided). Upon completion of the PATSCH sessions, parents returned to typical PAT implementation.

The parent educators at the two Colorado sites were trained to deliver the home safety and child health modules during a two-day in-person workshop led by a training specialist from the National SafeCare Training and Research Center. The workshop was comprised of a didactic presentation of the skills, modeling of the sessions, and then role-plays delivering the module with feedback from the trainer. To be certified in PATSCH, each parent educator audio recorded two sessions per module which were scored for fidelity by a SafeCare training specialist. Parent educators receive continual monitoring of sessions through coaching during and after certification. Implementation training and support specific to the braided curriculum was provided by the project coordinator throughout the study.

Measures

Data were collected in three formats: a computer-assisted self-interview, direct observations from a local data collector (pre- and post-intervention), and direct observations from the parent educator (at baseline and end-of-module for each of the 2 modules). The multiple modes of data collection represent data collected in a research assessment (self-interview and data collector observations) and data collected within a typical PATSCH session (parent educator). While data from these multiple modes are not compared directly, the multiple methods of data collection may better depict a true representation of parent's learned skills and behaviors. Basic demographic characteristics were collected for all participants through the self-interview on the tablet. Primary outcomes of interest included the home environment, child health, and parenting behaviors and were collected through data collector and parent educator assessments. Additional measures collected through the self-interview provided context for primary outcomes including environmental confusion, number of injuries, and degree of supervision in the home. Satisfaction surveys were conducted with parents and parent educators at the conclusion of intervention.

Home Environment.

The Home Accident Prevention Inventory (HAPI) is a count of hazards in the home including poisons, choking, suffocation, drowning, fire/electrical, fall/activity restrictions, sharp objects, firearms, crush hazards, and allergen/organic (Tertinger, Greene, & Lutzker, 1984). Data collectors conducted home environment scans at pre- and post-intervention assessment time points. In these assessments, data collectors counted visible, accessible hazards in each room without opening drawers or cabinets using standard eye-level (33 inches) and reach (45 inches) measurements so as to streamline the duration of the assessment and to acknowledge the possible discomfort a family might have with this procedure that would result in their lack of participation in the research. Data collectors were

instructed to assess the living room, kitchen, and bathroom, but there was variability due to participant preference. Parent educator assessment of hazards during intervention sessions was conducted at baseline (session 1) and end-of-module (session 4). In the parent educator assessments, visible hazards in the room were also counted, but, in contrast to the data collector visual scans, the parent educator counted based on the target child's reach and eye-level and included hazards in drawers and cabinets, with parent permission. The average number of hazards across the rooms in both data collector and parent educator assessments was used for the present analyses.

The Confusion, Hubbub, and Order Scale (CHAOS) is a 15-item self-report of environmental confusion (e.g., high levels of noise, crowding, home traffic) in the home (Matheny, Wachs, Ludwig, & Phillips, 1995). While the CHAOS does not measure hazards in the home per se, environmental confusion has been associated with various developmental outcomes and adverse physical health conditions (Matheny et al., 1995). The CHAOS was collected through the self-interview pre- and post-intervention and was designed to give context to the home environment, but not to directly compare to the HAPI assessment. CHAOS items are rated on 4-point scale (1 = very much like your own home; 4 = not at all like your own home) indicating positive (e.g., *"the atmosphere in our home is calm"*) and negative (e.g., *"you can't hear yourself think in our home"*) traits of the environment. A total score was summed with a higher score indicating a more chaotic home.

Child Health.

The Sick and Injured Child Checklist (SICC) was used to assess parents' identification of a child's symptoms and illnesses and ability to decide the most appropriate treatment (Bigelow & Lutzker, 2000; Delgado & Lutzker, 1988). Scenarios result in one of three actions: going to the emergency department, making a doctor's appointment, or caring for at home. A parent is presented with a scenario (e.g., *"Your child has been cranky and whiny for a couple of days. Last night, your child woke up coughing. Your child's nose has been running all day, too, and s/he has been sneezing"*), asked to identify the symptoms, and determine if it is an emergency. If a parent determines it is not an emergency, they are asked to describe the next steps they would take (e.g., make a doctor's appointment or care at home).

Six health scenarios were modified for REDCap delivery in the self-interview administered pre- and postintervention. Parents were assessed on their ability to make the correct treatment decision for each scenario and to correctly identify the illness or injury. If the parent made the correct emergency decision (e.g., the scenario is or is not an emergency), they received two points. If the parent correctly decided what next steps to take (e.g., make a doctor's appointment or care at home), they received two points. If the parent correctly identified the illness or injury (e.g., common cold, head injury), they received two points. Two scenarios were presented for each scenario type (3 scenarios, 2 points each, max score of 6); a summed score for each scenario type was calculated (max score of 12) and computed into an overall total score representative of all scenario types (max score of 36).

In addition to the computerized health scenarios presented in the computerized self-interview, the parent educators also assessed health knowledge as part of the PATSCH health

module. Assessments were completed at baseline (session 1) and at the end-of-module (session 4) during the health module. The SICC scenarios were read to the parent followed by a series of questions similar to those asked in the computer-adapted version. Parents identified the symptoms described in the scenario, determined if it was an emergency, and, if determined not to be an emergency, described the subsequent course of treatment (e.g., make a doctor's appointment or care at home). The parent educator assessed the parent on each scenario type (three per assessment). For parent-educator-conducted health assessments, the percent of questions correct on each scenario are presented and, thus, scores range from 0-100%. Implementation of both the computerized and in-person assessments of health scenarios was to address and investigate a limitation of the original RCT: a potential issue in the computerized delivery of the health scenarios as the SICC was not initially developed for computerized delivery (Guastafarro et al., 2018).

The Childhood Injury Questionnaire, a project developed measure, was used to measure the frequency of categorical injuries (e.g., bum, fall, cuts) and frequency of seeking treatment for these injuries (i.e., emergency department visit or doctor's appointment) in the previous six months (Morrongiello & Corbett, 2006; Morrongiello, Klemencic, & Corbett, 2008). The rationale behind adding Childhood Injury Questionnaire, delivered via the selfinterview pre- and post-intervention, was to provide context for the health scenarios measured by the SICC in the self-interview and in parent educator assessments.

Parenting Behaviors.

Two measures of parenting behaviors were administered in the self-interview pre- and post-intervention. The Parenting Young Children (PARYC) parent-report measure assesses the frequency of parenting behaviors during the past 30-days (McEachern et al., 2012). The 21 items are rated on an ordinal scale (0="not at all", 4= "sometimes", 7= "almost always") and summed on 3 subscales: supporting positive behavior (e.g., *"invite your child to play a game with you or share an enjoyable activity"*), proactive parenting (e.g., *"plan always to prevent problem behavior [such as feeding your child before going to the store]"*), and setting limits (e.g., *"stick to rules and not change your mind"*). The Parental Supervision Questionnaire (PSQ) is a 6-item assessment of parents' supervision skills developed for this project based on the Parent Supervision Attributes Profile (Morrongiello & Corbett, 2006). Parents indicate their agreement on items using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Sample items include *"I can trust my child to play by him/herself without constant supervision"* and *"I am aware of things in my home that are dangerous to my child."* A total score was summed for all (max score of 30).

Program Satisfaction.

Following the 8 sessions of PATSCH, parents completed a satisfaction survey consisting of 16 items rated on a 3-point Likert scale (A Lot, Some, Not at All). This survey was administered during final end-of-module assessment by the parent educator. Items focused on satisfaction with the materials (e.g., *"How easy to read and understand were the handouts and materials?"*), module-specific skills (e.g., *"I know more about how to identify hazards in my home that my child might reach"* or *"I learned new child health skills that I had not learned in other PAT sessions"*), and their parent educator (e.g., *"Did practicing with your*

parent educator improve your skills?”). After delivering PATSCH (i.e., at the conclusion of the study), parent educators completed a program satisfaction survey regarding recruitment and enrollment (e.g., *“what strategies did you use to recruit families in the PATSCH project?”* or *“why do you think parents completed the PATSCH curriculum and assessments?”*), the modules (e.g., *“will you continue to use some or all of the PATSCH curriculum?”*), and perceived parental opinions about PATSCH (e.g., *“what module do you think was families’ favorite?”* or *“how much positive change has PATSCH made for your families?”*). The parent educator satisfaction survey provided opportunity for additional feedback in open ended questions as well.

Data Analyses

The primary outcomes of interest included the HAPI, SICC, and PARYC. Dependent t-tests for the primary outcomes were used to test for significant changes in outcomes following intervention using SAS (SAS Institute Inc., 2011). Effect sizes were calculated for the primary outcomes. To account for the multiple modes of assessment, tests of significance were conducted for the direct observations from the data collector collected during research assessments (pre-and post-intervention) as well as from the parent educator collected during module assessments (baseline and end-of-module). However, the data collected by the data collector were not compared directly to the data collected by the parent educator. Tests of significance and effect sizes were not conducted for measures collected for context including the CHAOS, Child Injury Questionnaire, and PSQ.

Results

Home Environment

At the baseline assessment conducted by data collectors, there was a mean of 11.90 hazards ($SD = 5.14$) visible across 3 rooms in the home. There was a significant decrease in the total number of hazards visible across 3 rooms post-intervention, $M = 6.88$; $SD = 6.0$; $t(8) = 2.75(15)$; $p < .05$, $d = 0.89$ (Table 2). In the parent educator assessments conducted at baseline (session 1) of the PATSCH Safety module (Table 3), the mean number of hazards accessible to a child was 47.07 total hazards ($SD = 41.57$, range = 0 - 125). The HAPI assessment conducted by parent educators at the end-of-module demonstrated a significant decrease in the total number of hazards across 3 rooms, $M = 5.22$; $SD = 5.26$; $t(8) = 3.62$; $p < .01$; $d = 1.41$. To provide context for these objective direct observations, parents’ perception of the level of confusion in the home environment at pre-intervention and baseline as reported on the CHAOS in the self-interview had a mean score of 26.56 ($SD = 5.60$). Following intervention, perception of confusion in the home decreased by less than a point ($M = 25.60$; $SD = 6.0$), indicating little to no change in parents’ perception of environmental confusion in the home.

Child Health

At the pre-intervention assessment conducted by the data collector, the mean total score on the SICC was 24.9 ($SD = 2.08$). There was a significant improvement post-intervention, $M = 26.25$; $SD = 1.91$; $t(15) = -3.10$; $p < .01$, $d = 0.68$ (Table 2). The highest score post-intervention was 28 out of 36; parents were able to correctly identify the illness and select

the correct course of treatment on 78% of the scenarios. In the parent educator SICC assessments conducted in session, there was a significant improvement from baseline to end-of-module on each scenario type ($p < .01$; Table 3). In the self-interview, parent-reported injuries during the past six months decreased from pre-intervention ($M = 6.0$, $SD = 7.2$, range = 0 to 30) to post-intervention ($M = 2.81$, $SD = 2.86$, range = 0 to 10). Prior to intervention, 28% ($n = 13$) of parents reported at least one visit to the doctor or ER in the past 6-months; no visits were reported at post-intervention.

Parenting

There was no change in parents' self-report of supporting positive behavior and setting limits from pre- to post-intervention (PARYC; Table 3). There was, however, a significant improvement in the use of positive parenting from pre-intervention ($M = 37.22$, $SD = 8.71$) to post-intervention ($M = 40.63$, $SD = 7.14$, $t(15) = -2.58$; $p = .02$, $d = 0.43$). For context, parent-reported supervision increased from pre-intervention ($M = 24.28$, $SD = 5.13$) to post-intervention ($M = 26.69$, $SD = 2.12$, $d = 0.61$).

Program Satisfaction

At the conclusion of the PATSCH sessions, all parents ($n = 16$) indicated they would recommend PATSCH to other families. Every parent highly rated the Health and Safety modules. With regard to learning new home safety skills, 87.5% of parents indicated they learned 'A Lot' of skills they had not learned in PAT, whereas the remaining 12.5% indicated they learned 'Some' new skills. Fifty-six percent indicated they learned 'Some' new health skills not previously learned in PAT, while 44% learned 'A Lot' of new health skills.

All parent educators ($N = 5$) indicated they liked the safety module 'A Lot', while 40% liked the Health module 'A Lot' and 60% liked health 'Some.' In open ended questions, providers expressed enthusiasm for the health manual, a reference guide for parents of symptoms and illnesses, but also expressed the repetitive nature of the sessions practicing each of the decision types (emergency department, call the doctor, and care at home). Four parent educators said PATSCH made 'A Lot' of positive change for their families whereas one indicated 'Some' positive change. All parent educators would recommend PATSCH to other providers. Eighty percent believed parents completed PATSCH because they were engaged and learned new information.

Discussion

Providers are more likely to make adaptations on their own to an evidence-based program, risking fidelity, when they feel the program is not meeting a client's needs or engagement is fading (Aarons et al., 2012). Rather than risk providers adapting the curriculum without fidelity and approval from the developers, the research team adapted the PATSCH curriculum to systematically braid the safety and child health modules of SafeCare with the PAT curriculum. The curriculum was revised in direct response to feedback from participants (Guastafarro et al., 2018). A feasibility pilot was conducted with the purpose of examining the effect of the adapted curriculum. Findings from the feasibility study could be used to

inform future hypothesis testing research such as a fully powered randomized controlled trial.

In this pre-post design feasibility pilot of the adapted PATSCH curriculum, there were significant reductions in the number of observed hazards (SICC) and improved identification of illnesses and health care decisions (HAPI) post-intervention as measured in the research assessments conducted by data collectors. Session data from parent educators similarly demonstrate a significant improvement in PATSCH focused skills: parents significantly improved their ability to make their homes safer by removing hazards and to determine the best course of action for a given health scenario. The contextual measures were designed to provide perspective for the primary outcomes. Although both the observations from data collectors and parent educators showed a reduction in the number of hazards, the contextual data from the CHAOS showed no difference in the parent's perception of the environmental confusion in the home. Though the CHAOS does not directly measure hazard, the skills taught in the safety module should reduce the perceived environmental confusion (i.e., reduction of clutter and improved order). Similarly, while parents were able to identify the correct health decisions for a given health scenario, the contextual measures of frequency of injuries and visits to the emergency department did not change. It is not necessarily the case that the behaviors measured in the contextual measures did not change. The reasonably short period of time between assessment time points and lack of a follow-up period may explain why there was no observed change – there was not sufficient time for these behaviors or events to occur. Many of the contextual measures ask about the past six months, but it did not take six months to complete PATSCH and there research assessments.

The parent-child/infant interaction module was removed from this version of the PATSCH curriculum; however, we included parent self-report of parenting behaviors to see if PAT and PATSCH (Version 2) produced a change in parenting behaviors. Parents reported the use of more positive parenting practices and supervision over the course of the intervention. Because the data collectors and parent educators did not measure parenting behaviors through direct observation we cannot be sure of the effect of PATSCH Version 2 on parenting skills explicitly. The findings do suggest that PAT may be sufficient in affecting some parenting behaviors. The limited utility of directly observing of parenting skills has been well documented (Gardner, 2000), but future PATSCH research may want to bolster the measurement of parenting behaviors to ensure that parent's needs are being met.

The findings from data collector assessments had fewer statistically significant changes from baseline to end-of-module compared to parent educator assessment. This is likely due to differences in assessment administration and protocol. First, modification of the SICC measure to a computer-based self-directed questionnaire may not be the most accurate measure of learned health skills. Addressing a limitation of the RCT (Guastafarro et al., 2018), we included the parent educator assessment of the SICC as an initial step in establishing the validity of the computerized delivery of the SICC. The computer delivered version of the SICC needs to be empirically validated to assure that it is measuring the same health-related decisions as is done through in-person delivery of the measure. Secondly, for the safety assessment using the HAPI, data collectors did not open drawers or cabinets and only assessed clearly visible hazards, whereas parent educators opened drawers and cabinets

in their assessment. Data collectors did not open drawers and cabinets to streamline the duration of assessment visits, but also because it was felt this would be too invasive for these families and would prevent their participation in the research. This was the first study to use both data collector and parent educator assessment of the HAPI and the comparison of these methods is an area of open research for this line of research.

Beyond testing the effect of the adapted curriculum on outcomes, the acceptability of the curriculum was examined. The adapted PATSCH curriculum was well received by parents and providers and reinforced the original affinity for the safety and health modules documented in the larger RCT. Despite the previous ‘null’ results from the larger RCT and the modest results of this feasibility trial, the fact that parents and providers consistently rate the program as ‘high’ suggests that the systematic braiding approach is satisfying a practical need.

Limitations and Future Research Directions

While the findings are supportive of this adaptation, there are limitations. The feasibility trial was small, did not include a control group or a follow-up period, and consisted of families who are already receiving PAT services. Thus, the findings presented here are not causal in nature nor are they generalizable and therefore should be interpreted with caution. The small sample of eligible parents reflects the number of eligible families on the caseloads of providers during a very narrow window of implementation. Additionally, while there was minimal attrition in data collected by research staff, there is notable missing data from parent educator assessments. Parent educators entered these data on a beta version of an app designed for use in SafeCare implementation and did not uniformly supplement these data on paper forms. There were significant limitations in syncing and downloading the data from the app which the research team was not aware of during data collection. This resulted in fewer numbers of participants for the parent educator assessments as compared to the assessments conducted by the data collectors. The decision to collect data electronically was not only a geographical necessity – PATSCH sites were in Colorado and the project was managed in Georgia—but also, in response to a lesson learned from the larger RCT in which there was considerable difficulty in having data returned by local data collectors (Guastaferrero et al., 2018). This limitation makes it challenging to compare the reliability of data collected via an objective third party to data collected in session by a parent educator. This is an open area of research.

The results of the feasibility trial presented here suggest a number of future research directions. First, given the positive changes, a fully powered, randomized trial evaluating the effect of this adapted version of PATSCH is needed. Additionally, there would be value to comparing this version of PATSCH (Version 2) to Version 1, to PAT alone, to SafeCare alone, or some combination thereof to empirically evaluate the most effective delivery of this content. Second, the families who completed PATSCH in this feasibility trial had been participating in PAT for varying amounts of time, recall they had to have only completed the first five foundational visits but could have received many more sessions. It may be worth examining the effect of PATSCH if introduced early on in a parent’s involvement with PAT. The varied duration of PATSCH sessions, as is to be expected in applied implementation

settings, and the short duration of implementation with no follow-up period did not provide the needed time for some behaviors to arise. Future research should have a follow-up assessment to allow for behaviors to occur, such as responding to new health situations, and to investigate the maintenance of the learned behaviors. Systematic braiding offers an innovative method providing multiple evidence-based programs to families receiving parent-education services, while maintaining fidelity to the model and implementation infrastructure. While satisfaction and anecdotal data are in support of this adaptation, empirical work is needed before disseminating PATSCH on a wide scale.

These limitations notwithstanding, the data presented here on the adapted PATSCH curriculum produced large pre-post changes on a number of important variables and strong satisfaction with parents and providers. There are a number of implementation variables that likely account for this success as compared with the virtual null number of hazards in the home did results of the RCT in the southeast (Guastafarro et al., 2018). In the RCT, the number did not change over time for the group of families receiving PATSCH and those receiving PAT Alone. In contrast, the families in this feasibility trial had a significant decrease in the number of hazards following intervention. In the RCT, both groups improved in their ability to make the correct health decision when presented a scenario, but the improvement was not significant. In this feasibility trial, parents significantly improved their ability to determine the correct health care decision. Though a direct comparison between this feasibility trial and the RCT is not possible, these are important observations that can inform future work.

PATSCH uniquely employs the innovative process of systematic braiding to two evidence-based parent-support models, PAT and SafeCare. The results of the collective body of research examining the effect of PATSCH and this adapted version suggests the potential utility and acceptability of the systematic braiding approach for other evidence-based parent-support models. Future research should examine the utility of this approach across other models and outcomes to determine best practices for systematic braiding. If providers recognize that some clients need certain elements from different models, it is, therefore, incumbent upon the field to examine innovative implementation strategies, such as systematic braiding, to ensure that those receiving the program, in this case parents and children, have the greatest potential for success and that fidelity is maintained.

Funding:

This research was supported by a grant from the Annie E. Casey Foundation, PI: J.R. Lutzker. K. Guastafarro was supported in part by the National Institute on Drug Abuse of the National Institutes of Health under award numbers T32DA017629 and P50 DA039838. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

References

- Aarons GA, Green AE, Palinkas L. a, Self-Brown S, Whitaker DJ., ... Chaffin MJ (2012). Dynamic adaptation process to implement an evidence-based child maltreatment intervention. *Implementation Science*, 7(1), 32–41. 10.1186/1748-5908-7-32 [PubMed: 22512914]
- Aarons GA, & Palinkas LA (2007). Implementation of evidence-based practice in child welfare: Service provider perspectives. *Administration and Policy in Mental Health and Mental Health Services Research*, 34(4), 411–419. 10.1007/s10488-007-0121-3 [PubMed: 17410420]

- Albritton S, Klotz J, & Roberson T (2003). Parents as Teachers: Advancing parent involvement in a child's education Paper Presented at the Annual Meeting of the Mid-South Educational Research Association. Biloxi, MS.
- Bandura A (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Barnett ML, Brookman-Frazee L, Gonzalez JC, Rodriguez A, Stadnick NA, & Lau AS. (2018). Qualitative reports of how and when therapists adapt children's evidence-based practices during community implementation. *Journal of Clinical Child & Adolescent Psychology*, 1–12. 10.1080/15374416.2018.1485107
- Bigelow KM, & Lutzker JR (2000). Training parents reported for or at risk for child abuse and neglect to identify and treat their children's illnesses. *Journal of Family Violence*, 15(4), 311–330. 10.1023/A:1007550028684
- Castro FG, Barrera M, & Martinez CR (2004). The cultural adaptation of prevention interventions: Resolving tensions between fidelity and fit. *Prevention Science*, 5(1), 41–53. [PubMed: 15058911]
- Chaffin M, Hecht D, Bard D, Silovsky JF, & Beasley WH (2012). A statewide trial of the SafeCare home-based services model with parents in Child Protective Services. *Pediatrics*, 129(3), 509–515. [PubMed: 22351883]
- Delgado LE, & Lutzker JR (1988). Training young parents to identify and report their children's illnesses. *Journal of Applied Behavior Analysis*, 21(3), 311–319. 10.1901/jaba.1988.21-311 [PubMed: 3198551]
- Gardner F (2000). Methodological issues in the direct observation of parent-child interaction: Do observational findings reflect the natural behavior of participants? *Clinical Child and Family Psychology Review*, 3(3), 185–198. <https://doi.org/10.1023/A> [PubMed: 11225753]
- Guastafarro K, Lai BS, Miller K, Shanley Chatham JR, Whitaker DJ, Self-Brown S, ... Lutzker JR. (2018). Braiding two evidence-based programs for families at-risk: Results of a cluster-randomized trial. *Journal of Child and Family Studies*, 27, 535–546. 10.1007/s10826-017-0886-2
- Guastafarro K, & Lutzker JR (2017). Getting the most juice for the squeeze: When SafeCare and other evidence-based programs need to evolve to better protect children In Teti D (Ed.), *Parenting and Family Processes in Child Maltreatment and Intervention* (pp. 141–163). New York: Springer.
- Guastafarro K, Miller K, Lutzker JR, Whitaker DJ, Lai BS, Shanley Chatham JR, & Kemner A (2017). Implementing a braided home-based parent-support curriculum: Lessons learned. *Psychosocial Intervention*, 26(2), 181–187. <https://doi.org/10.1016/j.psi.2017.03.001> [PubMed: 30233125]
- Guastafarro K, Miller K, Shanley Chatham JR, Whitaker DJ, McGilly K, & Lutzker JR (2017). Systematic braiding of two evidence-based parent training programs: Qualitative results from the pilot phase. *Family and Community Health*, 40(1), 88–97. [PubMed: 27870760]
- Harris PA, Taylor R, Thielke R, Payne I, Gonzalez N, & Conde JG (2009). Research electronic data capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, 42(2), 377–381.
- Matheny AP, Wachs TD, Ludwig JL, & Phillips K (1995). Bringing order out of chaos: Psychometric characteristics of the Confusion, Hubbub, and Order Scale. *Journal of Applied Developmental Psychology*, 16, 429–444.
- Morrongiello BA, & Corbett M (2006). The Parent Supervision Attributes Profile Questionnaire: A measure of supervision relevant to children's risk of unintentional injury. *Injury Prevention*, 12(1), 19–23. 10.1136/ip.2005.008862 [PubMed: 16461415]
- Morrongiello BA, Klemencic N, & Corbett M (2008). Interactions between child behavior patterns and parent supervision: Implications for children's risk of unintentional injury. *Child Development*, 79(3), 627–638. [PubMed: 18489417]
- Rostad WL, Lutzker JR, & Guastafarro K (2016). Practices targeting neglect: The use of SafeCare to enhance parenting skills to reduce neglect In Gardner R (Ed.), *Tackling Child Neglect: Research, Policy, and Evidence-based Practice* (pp. 278–309). London: Jessica Kingsley Publishers.
- SAS Institute Inc. (2011). *Base SAS(R) 9.3 Procedures Guide*. Cary, NC: SAS Institute Inc.
- Tertinger DA, Greene BF, & Lutzker JR (1984). Home safety: development and validation of one component of an ecobehavioral treatment program for abused and neglected children. *Journal of Applied Behavior Analysis*, 17(2), 159–174. 10.1901/jaba.1984.17-159 [PubMed: 6735949]

Zigler E, Pfannenstiel JC, & Seitz V (2008). The Parents as Teachers program and schoolsuccess: A replication and extension. *Journal of Primary Prevention*,29(2), 103–120. 10.1007/s10935-008-0132-1 [PubMed: 18404381]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1.

Composition of PATSCH Curriculum

Model	Parents as Teachers			SafeCare		
Implementation:	There are 8 foundational visits followed by regular visits driven by parent input. The foundational visits cover specific topics including: child development, parenting behaviors, developmental topics, brain development, family dynamics and culture, and family supports. All visits include the 3 model components.			A parent receives 3 modules, either parent-child interaction or parent-infant interaction depending on their child's age. The order of module can be flexible depending on parent needs. Modules consist of 6 sessions which can be shortened or extended based on parent mastery of the materials.		
Model components:	Parent-child interaction	Development-centered parenting	Family well-being	Child health	Home safety	Parent-child/ infant interaction
Component goals:	Develop parenting skills that are warm, responsive, encouraging, and communicative	Information about physical, cognitive, social-emotional development and relationship between stage of development and behavior	Emphasize family strengths, capabilities, and skills	Learn process for making appropriate decisions regarding child's health needs based on signs and symptoms	Identify and reduce common hazards in the home	Improve family routine and activities; improve positive interactions; and, reduce challenging child behaviors
PATSCH Version 1:	✓	✓	✓	✓	✓	✓
PATSCH Version 2:	✓	✓	✓	✓	✓	Not included

Table 2.

Parent Questionnaire & Data Collector Assessments: Main Outcome Comparisons

	Baseline (N=18)	Follow-Up (N=16)	<i>t</i> (df)	<i>p</i> -value	<i>d</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)			
Total Hazards	11.90 (5.14)	6.88 (6.00)	2.75 (15)	0.01	0.89
Sick or Injured Child Checklist Total Score	24.90 (2.08)	26.25 (1.91)	-3.10 (15)	<.01	0.68
Parenting Young Children Survey					
Supporting Positive Behavior	44.17 (3.37)	46.00 (3.60)	-1.44 (15)	0.17	0.61
Positive Parenting	37.22 (8.71)	40.63 (7.14)	-2.58 (15)	0.02	0.43
Setting Limits	35.00 (6.63)	37.12 (5.21)	-1.40 (15)	0.18	0.36

Note. Bolded numbers indicate significant results.

Table 3.

Module Assessment by Parent Educators: Outcome Comparison

	Baseline (N=14)	End-of-Module (N=9)	<i>t</i> (df)	<i>p</i> -value
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		
Home Accident Prevention Inventory	47.07 (41.57)	5.22 (5.26)	3.62 (8)	<0.01
	Baseline (N=12)	End-of-Module (N=13)	<i>t</i> (df)	<i>p</i> -value
Sick or Injured Child Checklist				
Emergency Department Scenario	76.38 (16.60)	100.00 (0)	-4.93 (11)	<.01
Doctor's Appointment Scenario	76.62 (14.67)	96.70 (8.56)	-5.16 (10)	<.01
Care at Home Scenario	77.38 (15.48)	100.00 (0)	-5.06 (11)	<.01

Note. Bolded numbers indicate significant results.