

1 Family functioning and mental health changes following a family therapy intervention in
2 Kenya: Results of a pilot trial

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Abstract

14

15 Family violence and the high burden of mental health disorders are two multifaceted and
16 inextricably linked public health problems globally. Family-centered interventions offer a
17 promising avenue for addressing both of these challenges simultaneously. The purpose of this
18 study was to conduct a mixed methods, single group pre-post pilot trial of a family therapy
19 intervention delivered by lay counselors in Kenya. Results from 10 families completing
20 treatment suggest that the intervention improved family relationship quality and mental
21 health according to both caregivers and children. Point estimates represent change of more
22 than two standard deviations from baseline for the majority of primary outcomes. Treated
23 families also reported a decrease in child maltreatment, intimate partner violence, and
24 alcohol-related problems. These results were corroborated by findings from an observational
25 measure of family functioning and in-depth interviews. This study provides preliminary
26 evidence for the efficacy of a family-based intervention consisting of streamlined core clinical
27 strategies to target multiple domains including both child mental health and family
28 dysfunction.

29

Keywords: family therapy, global mental health, Kenya

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32 **Introduction**

33 Two major public health problems globally include high burdens of mental health
34 disorders and family violence, as well as chronic negative interaction patterns in families that
35 have lasting developmental consequences (Repetti, Taylor, & Seeman, 2002). These problems
36 are multi-faceted in and of themselves but are also inextricably linked. This of course
37 introduces levels of complexity for practice and research but also points to the potential of
38 addressing these interwoven problems simultaneously. Family-centered interventions offer a
39 promising avenue for achieving outcomes at both individual and family levels.

40 An estimated 10-20% of young people worldwide suffer from mental health disorders,
41 and many live in low-and-middle income countries (LMICs) or low-resource areas of
42 high-income countries where care is scarce (Douthit, Kiv, Dwolatzky, & Biswas, 2015; Kieling
43 et al., 2011; Repetti et al., 2002). Characteristics of the family environment can be powerful
44 risk or protective factors for mental health outcomes, including both internalizing and
45 externalizing symptoms. Positive caregiver-child communication, parental involvement, and
46 monitoring often emerge as protective factors, while distance, mistrust, child maltreatment,
47 and witnessing of intimate partner violence have been associated with emotional and
48 behavioral problems (Boudreault-Bouchard et al., 2013; Khasakhala, Ndetei, Mathai, &
49 Harder, 2013; Mejia, Calam, & Sanders, 2012; Vu, Jouriles, McDonald, & Rosenfield, 2016).
50 Unfortunately, the rates of family violence are high with nearly one-quarter of people
51 worldwide reporting childhood physical abuse and one-third reporting emotional abuse
52 during childhood (Stoltenborgh, Bakermans-Kranenburg, Alink, & van IJzendoorn, 2015).
53 One-third of women over age 15 also report experiencing sexual or intimate partner violence
54 during their lifetime (Devries et al., 2013). These high rates of violence exposure lead to
55 large numbers of people with elevated risk for both relationship difficulties and poor mental
56 health outcomes. This highlights the need for intervening at the family level to reduce

57 violence and improve functioning for mental health prevention and treatment.

58 Family-level interventions delivered in LMICs have shown promising results in high-risk
59 populations, improving outcomes such as parenting practices, family and parent-child
60 communication, and child and adolescent psychosocial outcomes (Betancourt et al., 2017;
61 Knerr, Gardner, & Cluver, 2013; Mejia et al., 2012; E. S. Puffer et al., 2016; Vandenhoudt et
62 al., 2010). However, most are promotion or prevention strategies not designed specifically for
63 families experiencing current and severe negative interaction patterns occurring alongside
64 ongoing mental health symptoms (Dixon-Mueller, 2009; Repetti et al., 2002). In
65 high-resourced contexts, evidence-based strategies for this subpopulation include intensive,
66 tailored family therapy, sometimes combined with engagement of external systems (Carr,
67 2009; Marvel, Rowe, Colon-Perez, Diclemente, & Liddle, 2009; Podell & Kendall, 2011).
68 Such intensive approaches could be effective in lower resource contexts, including LMICs and
69 underserved areas of high-income countries, but are costly and largely dependent on
70 functional mental healthcare systems. Treatments that require this high level of sustained
71 resources are unlikely to be feasible or scalable in the lowest resource areas of the world.

72 The challenges of sustainability and scalability are not unique to family-based
73 interventions in low-resource settings. Individual-level evidence-based mental health
74 interventions also are developed in high-resource settings for highly trained professionals.
75 This has been addressed for these individual interventions, often quite effectively, through
76 streamlining evidence-based practices and task shifting—training non-professionals to
77 provide treatment (Joshi et al., 2014). Task shifting has proven effective in diverse settings
78 for a range of disorders and treatments, including trauma-focused cognitive behavioral
79 therapy in Zambia (L. K. Murray et al., 2013) and Tanzania (O'Donnell et al., 2014),
80 cognitive processing therapy for sexual violence survivors in the Congo (J. K. Bass et al.,
81 2013), interpersonal therapy for depression in Uganda (Bolton et al., 2003), cognitive
82 behavioral therapy for depressed mothers in Pakistan (Rahman, Malik, Sikander, Roberts, &
83 Creed, 2008), and a brief intervention for severe depression in India (V. Patel et al., 2017). It

84 is therefore likely that this approach could be applied for family treatment if adequate
85 attention is given to the complexities of focusing on relationship problems and treating
86 multiple clients within family units at once.

87 The purpose of this study was to conduct a pilot study of a family therapy intervention
88 delivered by lay counselors in Kenya designed for families with current, severe problems in
89 family functioning and a child or adolescent with mental health concerns. We present clinical
90 changes across multiple target outcomes: family functioning, couples relationship quality and
91 violence, child maltreatment, and individual child and caregiver mental health.

92 Method

93 This study used a pre-post, single group design to evaluate the impact of the family
94 therapy intervention. We used mixed methods to examine change through the use of
95 pre-post surveys, post-intervention qualitative interviews, and, for a subsample, a pre-post
96 direct observational measure of family functioning.

97 Setting and Participants

98 We conducted this study in two peri-urban communities near Eldoret, Kenya located
99 in the Rift Valley Province of the country. Counselors consisted of community members who
100 had no prior mental health training. To recruit these lay counselors, community leaders
101 identified 23 trusted individuals—“natural counselors”—from community religious
102 congregations and local civic leadership. These are individuals who, despite having no formal
103 training, reported that they already served as informal sources of support for families in need
104 by helping to solve family conflicts, address domestic violence, investigate child abuse and
105 neglect, and advise on children’s behavioral and emotional problems. We interviewed this
106 cohort, invited 14 of these individuals to participate in the counselor training, and selected 9
107 to deliver the treatment. Selection was based on applicants’ current informal counseling
108 activities, expressed interest and motivation, and their performance during training related
109 to natural clinical skills and understanding of the therapy. We also considered their gender,

110 age, type of community role (i.e., associated with community vs. religious groups), and level
111 of education in order to have variability on these characteristics.

112 The selected counselors then recruited 18 families from their communities in need of
113 family-based services. Eligible families were chosen because the counselor had concerns
114 about: (1) persistent patterns of dysfunctional family interactions (e.g. high levels of conflict,
115 lack of communication and effective problem-solving, distance and mistrust) and (2) an
116 adolescent between the ages of 12 and 17 in the family with behavioral or emotional
117 concerns. The counselors first approached the family to explain the intervention, ask if the
118 family was interested in learning more, and to obtain permission for the research team to
119 contact them. If interested, a research staff member visited the family to fully explain the
120 study and to obtain adult consent, as well as parental permission and assent for the child.
121 Up to two caregivers and one adolescent were permitted to participate in the study per
122 family; if more than one adolescent was eligible, one was randomly selected for assessments.
123 Families were given permission to include other family members who were not assessed in
124 the intervention sessions, though none did so during the course of the study.

125 Of the 18 families referred for treatment, 15 consented to treatment, 14 initiated, and
126 10 completed. The four non-completers did not complete endline assessments and were
127 therefore not included in the analyses. See the participant flow diagram in Figure 1.

128 **Intervention**

129 Tuko Pamoja (TP), “We are together” in Kiswahili, is a family therapy intervention
130 with the central goal of creating a positive family environment supportive of healthy child
131 and adolescent development. A qualitative exploration of family functioning and its impact
132 on mental health guided the development of specific intervention content and the selection of
133 evidence-based strategies. Results identified indicators of family dysfunction related to child
134 mental health that reflected chronic negative interaction patterns, including: conflict related
135 to roles and responsibilities, favoritism and discrimination, harsh and ineffective discipline,

136 distance and mistrust in parent-child and marital relationships, and avoidant or negative
137 communication during problem-solving and decision-making; participants associated these
138 with marital violence and violence against children. These relationship characteristics
139 became core targets of the intervention.

140 TP draws on evidence-based strategies from solution-focused and systems-based
141 approaches as these strategies most clearly aligned with key intervention targets and were
142 expected to be amenable to integration with the current informal counseling practices in this
143 setting (Kerr, 1981; Minuchin & Nichols, 1998). For elements of the treatment related more
144 directly to individual mental health, cognitive behavioral strategies are also included
145 (Dobson, 2009).

146 The TP intervention is manualized and organized by modules (referred to as “somos,”
147 meaning lessons in Kiswahili), with families receiving only the modules that they need and in
148 which they want to participate. The three most commonly used modules address problems in
149 different family relationships: marital, parent-child, and overall family cohesion/organization.
150 There are then two brief modules focusing on cognitive-behavioral strategies for
151 individual-level distress: one for adolescents and one for caregivers, with significant overlap
152 between the two. An additional brief module specifically related to communication about
153 sex, HIV, and related behaviors, is also included given the ongoing concerns related to HIV
154 and early, unplanned pregnancy among adolescents in Kenya. Modules are designed to last
155 approximately 4 to 6 sessions each depending on family needs and progress; given that the
156 core steps also are similar across modules, families are likely to move more slowly during the
157 first and increase in pace for subsequent ones. Thus, while the manual is very structured in
158 terms of the sequence of steps and strategies, activities are not time-limited. Sessions are
159 typically completed in homes and involve different constellations of family members as
160 needed (e.g., the parents alone; the mother and child; all members). The full development
161 process, details of intervention content, and a complete report of feasibility and acceptability
162 results are described in E. S. Puffer, Healy, Giusto, Stafford, and Ayuku (under review).

163 **Procedures**

164 **Training.** Counselors received 10 days of training, totaling approximately 60 hours
165 of active training led by one doctoral-level psychologist from Kenya alongside a doctoral-level
166 clinical psychologist and doctoral student from the US. Training focused on both general
167 clinical skills and treatment-specific skills and content with a heavy focus on clinical role
168 plays and peer feedback. After six months, the treatment manual was revised based on
169 counselor feedback and the completion of counselors' first cases. Revisions consisted of
170 increasing clarity of concepts and changing the order of some steps. A refresher training
171 totaling 40 hours over 5 days was then delivered that focused on practicing revised portions
172 of the manual, continuing to practice application of general clinical skills, and administrative
173 updates on implementation. Training included instruction on responding to crisis situations
174 and referral procedures for clinical problems beyond the scope of this intervention.

175 **Supervision.** We followed a tiered supervision model that has some commonalities
176 to approaches used for previous interventions in LMICs (L. K. Murray et al., 2011). In this
177 model, local supervisors are trained to supervise the lay counselors, and those supervisors
178 then receive consultation from mental health professionals. For this study, we recruited four
179 local supervisors from third year undergraduate students from Moi University studying
180 medical psychology. They received practicum training hours for their participation, allowing
181 us to contribute to their training while providing low-cost supervision to counselors.
182 Supervisors received an initial XX-hour training over 5 days on the intervention and
183 supervision processes and then participated in the counselor training. They provided
184 supervision to counselors one-on-one after each session in person or via phone; they then
185 received weekly consultation from a local and a US-based psychologist (via Skype).

186 **Data collection.** The caregivers and one target child per family completed a brief
187 survey prior to the first therapy session and after completing the intervention. Surveys were
188 administered verbally by Kenyan research assistants not involved in the intervention who
189 were trained in survey administration and research ethics. Survey data were entered into a

190 tablet computer. At the conclusion of therapy, each family member also participated in an
191 in-depth qualitative interview administered by a different research assistant specifically
192 trained in this methodology. A subsample of families also completed a direct observational
193 measure at both pre- and post-intervention time points as described below; this involved
194 completing videotaped activities administered by a research assistant specifically trained in
195 this method. All data collection activities were conducted with individuals in private
196 locations. Therapy sessions also were audio recorded, and a research staff member or local
197 supervisor then transcribed the sessions into English.

198 **Outcome Measurement**

199 The primary outcomes of this study were family relationship quality and individual
200 mental health. Secondary outcomes included alcohol use, alcohol-related conflict in the
201 family, child maltreatment, and intimate partner violence.

202 **Survey instrument.** Table A1 in the Appendix summarizes the survey instruments
203 used to measure the primary and secondary outcomes. All composite scales were developed
204 or adapted for this setting and had high internal consistency.

205 **Family relationship quality** was assessed with 9 items, such as “How often does
206 your family have quarrels?” These items were locally-developed based on qualitative data.
207 Participants viewed a picture of a ladder and responded to each statement with a number
208 from 1 to 10 that represented steps on this ladder. The anchor for Step 1 was “a little,” and
209 the anchor for Step 10 was “a lot.” Adult caregivers and children completed identical
210 versions of this questionnaire. We averaged responses to these items to create a composite
211 score that ranged from 1 to 10.

212 **Couple’s relationship quality** was assessed with 11 items, such as “In the past two
213 months how often have you and your spouse laughed together?”. Seven items were from the
214 Dyadic Adjustment Scale (DAS; Spanier (1976)), and four items were locally developed
215 based on qualitative data. Participants responded on a 6-point scale from “none of the time”

216 (0) to “all of the time” (5). We averaged responses to these items to create a composite score
217 that ranged from 0 to 5.

218 **Child mental health** was assessed by child-report and caregiver-report using the
219 19-item ASEBA Brief Problem Monitor (BPM) that assesses children’s functioning and
220 responses to interventions across multiple symptom domains, including internalizing,
221 externalizing, and attention problems (Achenbach, McConaughy, Ivanova, & Rescorla, 2011).
222 Participants responded on a 3-point scale: “not true” (0); “somewhat or sometimes true” (1);
223 “very true or often true” (2). For example, an item on the YSR asks, “Are you too fearful or
224 anxious?,” and the caregiver version asks, “Do they have fear or worry?” We averaged
225 responses to these items to create composite scores for caregivers and children that ranged
226 from 0 to 2.

227 **Caregiver mental health** was assessed with 3 items from the General Health
228 Questionnaire (GHQ; Goldberg (1972)), such as “Over the past few weeks have you been
229 feeling unhappy or depressed?” Caregivers responded on a 4-point scale from “never” (0) to
230 “often” (3). We averaged responses to these items to create a composite score that ranged
231 from 0 to 3 (Watson, Kaiser, Giusto, Ayuku, & Puffer, under review).

232 **Child maltreatment** was assessed by child-report and caregiver-report using single
233 items from the Multiple Indicator Cluster Survey (MICS; UNICEF (2013)) and the
234 Discipline Interview (DI; Lansford et al. (2005)). We asked children to indicate the
235 frequency of two types of physical abuse in the past two months: (a) “How often does your
236 caregiver beat you on the bottom or elsewhere on the body with something like a belt, hair
237 brush, stick, or other hard objects?” and (b) “How often does your caregiver spank, slap or
238 hit you?” Children responded about abuse from any caregiver on a 4-point scale from
239 “never” (0) to “many times” (3). We created a composite score that ranged from 0 to 3. We
240 asked caregivers how often they engage in the these same behaviors and created a similar
241 composite average score.

242 **Intimate partner violence and harsh marital interactions** were assessed with

243 single items administered to both caregivers, asking about behaviors in the past two months.
244 Verbal intimate partner violence (IPV) was assessed with a single item from the Conflict
245 Tactics Scale asking whether one has “insulted, shouted, or yelled” at their partner (CTS;
246 Straus, Hamby, and Warren (2003)). Physical IPV was assessed with one locally-developed
247 item asking about physically hurting one’s partner. General harsh marital interactions also
248 was assessed with one locally-developed item asking about being “very harsh” towards one’s
249 partner during disagreements. For all items, caregivers responded on a 5-point scale from
250 “never” (0) to “more than 8 times” (4).

251 **Alcohol use and alcohol-related conflict** were assessed with a series of single
252 items asking about behaviors in the past two months on a 5-point scale from “never” (0) to
253 “4 or more times a week” (4). Frequency of drinking any alcohol was assessed with one item
254 from the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle,
255 Saunders, and Monteiro (2001)). Frequency of “coming home drunk” was assessed with a
256 locally-developed item. For these items, caregivers reported about their own behavior and
257 the behavior of their spouse. Finally, for family conflict related to alcohol use, caregivers and
258 adolescents reported on a single item assessing frequency of parent-adolescent conflict that
259 occurred when a caregiver was drunk. Likewise, caregivers reported on a series of single
260 items assessing conflict with their spouse while (at least) one partner was drunk; they
261 reported on conflict when they were drunk themselves and when their partner was drunk.

262 **Observational measure.** A subset of families participated in three structured
263 activities designed to elicit family interactions indicative of family relationship quality and
264 problem-solving abilities. These were videotaped and rated based on a structured coding
265 system. This assessment tool was adapted from the Family Problem Solving Code
266 (FAMPROS; Forbes, Vuchinich, and Kneedler (2001)) by our team for this setting (Giusto,
267 Kaiser, Ayuku, & Puffer, under review). Activities included: (1) “house-building” in which
268 families had to build a small house together using cardboard and other local craft materials;
269 the administrator then purposefully destroys the house halfway through the allotted time,

270 telling the family that a “storm” has come and asks them to rebuild; (2) a discussion
271 between the caregiver couple to discuss and resolve a current problem; and (3) a family
272 discussion including the caregivers and child about hopes and plans for the future. All
273 activities had a 10 minute time limit, with some families finishing earlier. Two raters—one
274 from Kenya and one from the United States—coded each videotape individually and then
275 discussed discrepancies to reach full agreement on all ratings.

276 For each activity, multiple domains were coded. Those used in this study included
277 ratings of positive behavior, negative behavior, relationship quality, and quality of
278 problem-solving/planning process for each activity (i.e., extent of housebuilding teamwork
279 for the first activity or extent of problem resolution in couples discussion). These were each
280 rated on a 7-point scale with higher scores representing higher levels of each indicator. Two
281 composite scores were calculated for quality of interactions: (1) Quality of
282 Interactions-Relational: the average of ratings across activities on Positive Behavior,
283 Negative Behavior (reverse scored), and Relationship Quality and (2) Quality of
284 Interactions-Process: the average of one rating from each activity reflective of
285 problem-solving and planning processes, including Quality of Problem Solving in activities 1
286 and 2 and the Quality of Discussion/Planning for activity 3. Resulting composite scores
287 ranged from 1-7.

288 **Semi-structured post-treatment interview.** Following treatment, in-depth
289 interviews were conducted with each participant individually to explore experiences of
290 therapy and perceptions of changes within the family. Interviews were conducted in Swahili
291 by a research assistant trained in qualitative methods. They were then audio-recorded and
292 transcribed verbatim into English.

293 **Process Measurement**

294 Several process evaluation measures were included as indicators of feasibility and
295 acceptability, including: session attendance, length of treatment, and quantitative ratings of

296 fidelity and counselors' clinical competencies. Both fidelity and clinical competency measures
297 were rated for four sessions per family selected from the early, middle, and later stages of
298 treatment. Two raters completed the measures using session transcripts, reaching 80%
299 agreement prior to completing ratings for this study.

300 A structured fidelity assessment tool was developed specifically for this intervention
301 that assessed completion (yes/no) of the intervention steps and then the quality with which
302 each step was completed ranging from poor (1) to excellent (5). This yields two scores: (1)
303 Percentage of steps correctly completed per session and (2) Mean quality score across steps.
304 Two types of counselor clinical competency were measured on a 4-point scale ranging from
305 poor (1) to excellent (4). First, counselors' use of general clinical skills, such as verbal
306 communication and rapport building, was measured using seven items from a version of the
307 Enhancing Common Therapeutic Factors (ENACT) scale (B. A. Kohrt et al., 2015) adapted
308 for family treatment in this setting. Second, clinical competencies relevant specifically to TP
309 strategies were measured using a 7-item measure we developed that had the same structure
310 as the ENACT items. This included items such as "focus on the family system" and "focus
311 on behavioral change."

312 **Analysis**

313 We estimated average treatment effects based on the survey data collected pre/post
314 using paired t-tests (standardized, Glass's delta). For pre/post data from the direct
315 observational assessment collected from a subset of the sample, we plotted family-level
316 ratings of Overall Interaction Quality and Problem-solving. Lastly, we calculated descriptive
317 statistics to summarize fidelity and competency process evaluation findings.

318 We conducted a thematic content analysis of post-treatment interview transcripts. We
319 included both deductive and inductive codes, with deductive codes drawn from literature on
320 constructs of family functioning consistent with previous qualitative data, including those
321 presented in the General Assessment of Relational Functioning (Guttman et al., 1996).

322 Inductive themes were identified through close reading of interview transcripts by multiple
323 team members, which continued until no new themes were identified as additional transcripts
324 were reviewed. Themes were operationalized into a codebook, with code definitions
325 developed and reviewed collaboratively by an interdisciplinary team. Two team members
326 independently applied the codebook to three transcripts until sufficient agreement was
327 reached in interpretation of codes. All transcripts were coded, and thematic summaries were
328 developed by code to synthesize main themes.

329 **Ethical Review**

330 The study protocol was reviewed and approved by the Duke University Institutional
331 Review Board and the Institutional Research & Ethics Committee at Moi University
332 (Kenya).

333 **Results**

334 **Participants**

335 Table 1 reports characteristics of the 10 families who completed treatment. Six of 10
336 adolescents were female, and the mean age of adolescents was 14 years. The sample included
337 7 families with two caregivers living in the home, two families with only one unpartnered
338 female caregiver, and one family in which the caregivers were separated with the adolescent
339 and female caregiver living together. The average age of caregivers was 39 years, and the
340 majority had only primary-level education.

341 **Treatment Effects**

342 Figure 2 displays the average treatment effects (standardized) for the primary and
343 secondary outcomes. See Table A2 in the Appendix for numerical summaries and test
344 statistics. All estimates are in the expected direction, and most 95% confidence intervals
345 exclude zero. The treatment had large effects on family relationship quality and mental

346 health according to both caregivers and children, including couples' relationship quality that
347 reflects reports of both partners in two-caregiver families. Point estimates represent change
348 of more than 1.5 standard deviations from baseline.

349 For violence-related outcomes, all estimates are also in the expected direction. Both
350 children, and to a larger extent caregivers, reported reduced child maltreatment. Intimate
351 partner violence, both verbal and physical, as well as general harsh interactions, decreased.
352 Alcohol-related outcomes also reflect change in the expected direction including those related
353 to actual drinking behavior and their impacts of drinking on family relationships.

354 The self-reported improvements in family relationships is supported by the
355 observational data. Figure 3 presents pre-post composite ratings for the five families who
356 were selected to participate in the family observation activities. We observed positive change
357 trajectories for nearly all families on quality of interactions, both relational and process.
358 Only one family-Family 6-exhibited a decline from pre to post on Quality of
359 Interactions-Relational (though not Process).

360 The data from Family 6 was unique, and less informative in some ways, because the
361 pre-assessment was conducted with only the child and the female caregiver because the
362 father was unavailable. The post-assessment was then done with all three. This drove their
363 decrease on their Relational composite, and comparing the interactions and ratings at both
364 time points shows the value of observing family members together. In the pre-intervention
365 observation with only the female caregiver and child, scores were very high. The female
366 caregiver and child smiled at each other, exhibited comfort in each other's presence by
367 leaning towards each other when engaging in activities and speaking in calm tones. The
368 female caregiver also provided opportunities for the child to speak and gently encouraged
369 him to do so when he was quiet. Additionally, during the house building activity when the
370 house is purposefully destroyed by the administrator, the dyad laughed and the mother
371 appropriately took the lead in rebuilding with a calm demeanor. Post-treatment, with the
372 male caregiver present, they continued to exhibit many positive behaviors as reflected in

373 their scores. However, the father's behaviors led to decreases, as he interrupted the female
374 caregiver at times and did not take any opportunities to encourage the child to participate.

375 Conversely, Family 9 showed the largest improvements on both composites. At
376 baseline, the mother appeared withdrawn and quiet throughout interactions, and the father
377 dominated conversations, allowing little room for others to speak; he often used a lecturing
378 tone. Overall between members, eye contact and warmth were minimal. At post-test, the
379 family exhibited increased reciprocal smiling, more equitable participation, instances of the
380 father providing opportunities for the child to speak, and increased warmth between the
381 mother and father who turned to each other often, spoke in a calm tone, and made more eye
382 contact. As a specific example, during the house building activity, members took all
383 viewpoints into account and actively worked together after the "storm" destroyed the house.
384 These results mapped onto their clinical progress that suggested reductions in couple conflict,
385 increased family warmth and trust, and improved trust between father and daughter.

386 **Qualitative Descriptions of Change**

387 **Family functioning.** In describing their families pre-therapy, all participants
388 reported a norm of persistently negative interactions in their homes. All families reported
389 disagreements, lack of understanding and respect, and quarrels, with quarrels reported to be
390 the most common sign of family relationship problems. Several families encapsulated their
391 turbulent emotional climate by describing that each family member "goes their own way"
392 (Swahili: *kuenda kivyao*) to avoid the quarreling and disagreements. This took the form of
393 children running away from home, parents sleeping apart, or one parent leaving the home.
394 For example, one child described that "[My father] used to come in the evening to quarrel
395 with mother. There were just disagreements in the house. Nobody was staying there.
396 Everyone went on their own just to avoid the noise." In contrast, post-therapy, all families
397 reported an increase in time spent together as a family, which resulted in improved
398 communication. In contrast to "going their own way," families described "sitting together"

399 (Swahili: kukka pamoja), a phrase used to encompass improved communication,
400 understanding, and respect. Sitting together led to fairer task distribution, better emotional
401 climate and closeness, and improved problem-solving within the family. Additionally, fathers
402 who previously spent money on alcohol over household needs began saving and contributing
403 to basic family needs such as food, clothing, and furniture. Such changes were noted by all
404 members of several families and not only fathers.

405 **Couples relationships.** Before therapy, all couples reported lack of communication
406 to be the primary reason for couple dysfunction. In most cases, a primary source of conflict
407 was financial issues, with many families attributing financial problems to the father's alcohol
408 use. Use of specific conflict resolution tactics was reported by only two couples
409 pre-intervention, and both relied on community resources for help resolving problems. All
410 couples described better communication post-treatment, with about half of couples
411 specifically reporting better conflict resolution. Several couples attributed improvements in
412 handling conflicts and financial management to their improved communication skills related
413 to "listening" and "respect"—two skills explicitly taught in TP. For example, one mother
414 explained, "The other is saying, 'there is no flour today; bring vegetables and flour.' We
415 started communicating this way, and I can see that there is no disagreement now. When he
416 says that there is nothing at all, I won't be angry at him."

417 **Dyadic parent-child relationships.** Prior to therapy, couples rarely described
418 working together to fulfill parenting responsibilities. Indeed, several mothers reported being
419 solely responsible for children because the children feared the father or because he was often
420 drunk or away. Additionally, several participants reported pre-therapy problems with fathers'
421 relationships with children, including fathers failing to communicate well with children or
422 beating them excessively. Following therapy, all families reported changes in fathers'
423 relationships with children, including spending more time with children, being able to "talk
424 well" with them, and recognizing their needs; they reported a decrease in fathers beating
425 children in response to perceived behavior problems. As a result, children reported feeling

426 more comfortable sharing problems with their father.

427 In contrast, in almost all families, mothers and children reported having a closer
428 relationship pre-therapy than fathers and children. These relationships were described as
429 having greater emotional closeness - largely attributed to better communication - and less
430 physical and verbal harsh treatment. At the same time, mothers reported that pre-therapy,
431 most communication was focused on children's material needs, with some mothers reporting
432 that children could not express emotions or relay experiences and instead acted out. In one
433 case, a daughter described being unable to disclose sexual abuse at school to her parents,
434 fearing being beaten. Post-therapy, about half of mothers reported more understanding of
435 their child's emotions and behaviors during the interviews. This led to less harsh disciplining
436 methods as well, such as withholding "treats" rather than beating. For example, one mother
437 described, "Now I don't beat him up. I just talk to him. When he makes a mistake I just
438 give a punishment of, let's say, denying him something."

439 **Adolescent mental health.** Family changes were particularly impactful for
440 adolescents. Before counseling, most families reported that difficulties in problem-solving
441 affected children most of all, such as quarrels causing emotional distress. Children reported
442 trying to avoid quarrels, for example: "Father and mother were fighting at home, so [I would
443 go] at a place with my friends. We were just hanging around town." "Hanging around town"
444 is often described as a bad sign, suggesting involvement in undesirable or dangerous activities.
445 Children also described their parents being unable to pay school fees and that requesting
446 books or school fees led to quarrels or harsh physical treatment. Post-intervention, several
447 families reported talking with - rather than quarreling in front of - children, including making
448 a conscious effort to communicate and problem-solve to meet needs, such as school fees. One
449 father reported, "We meet in the evening, and we look at the money we have brought and
450 plan on it. I give her the ability to plan like this for school and this for food and so on."

451 Most families reported positive changes in the adolescent's behavior as well. A few
452 parents reported that pre-therapy, their children were not obeying them in terms of doing

453 chores, spending money as instructed, or returning home as asked. Post-therapy, most
454 families described that improved communication resulted in positive behavior change.
455 Adolescents were described as helping parents around the home, arriving at home on time,
456 and buying supplies for the home as requested.

457 **Caregiver mental health.** Most caregivers reported experiencing some form of
458 stress or even suicidal ideation before counseling. Many fathers reported thoughts of leaving
459 the family, and many mothers reported the desire to kill herself and/or the children due to
460 the poor conditions of the family. For example, one father reported, “I had the idea of leaving
461 but not to harm myself, but my partner [wife] on the other side had the thoughts. She was
462 saying that she would poison everyone and stop living this life.” One mother also reported
463 experiencing physical symptoms, such as fainting, due to the amount of “pressure” she was
464 experiencing. Post-counseling, almost all caregivers reported lower levels of stress and no one
465 reported suicidal ideation. Most fathers reported lower spending on alcohol consumption and
466 higher financial contribution to family needs, primarily school fees for the children.

467 **Process Evaluation**

468 For program completers, treatment required a mean of 15 sessions (Range: 8 - 22
469 sessions), reflecting varying severity of needs and breadth of needs requiring different
470 numbers of modules. On average, the treatment was delivered over the course of 30 weeks
471 (Range: 15 - 48 weeks) with an average of 2 sessions per month, reflecting a deviation from
472 the plan of holding weekly sessions. Supervision logs and clinical notes described scheduling
473 difficulties, especially related to work and school demands and preferences by some
474 participants to meet less frequently. Most families completed two modules, or “somos”,
475 spending an average of 7 sessions per module. As expected, the first module they completed
476 generally took longer than the second given the overlap in structure and skills.

477 The most commonly chosen was the module on marital relationships (6 families),
478 followed by the one targeting the parent-adolescent relationship (5 families). None of the

479 families completed the caregiver distress module, as all parents reported decreased mental
480 health symptoms after completing either the marriage or parent-adolescent relationship
481 module. Across sessions rated for fidelity and clinical competency indicators, counselors
482 achieved a mean of 79% fidelity to the intervention and a mean score of 3.2 (out of 5) for
483 ratings on quality of execution of the steps they completed; this rating corresponds to a
484 rating of “good” reflecting adequate execution to fulfill the purpose of a given step. On
485 measures of clinical competency, the counselors achieved a mean score of 20.7 (out of 28) for
486 general competencies (e.g., verbal communication skills, empathy), and mean score of 20.6
487 (out of 28) for TP intervention-specific clinical competencies (e.g., focusing on solutions). On
488 average, ratings for most individual competency indicators reflected “moderate” use. More
489 detail on the strengths and weaknesses related to fidelity and competency are reported
490 elsewhere (E. S. Puffer et al., under review).

491

Discussion

492 Participants in a family therapy intervention (Tuko Pamoja: “We are together”)
493 exhibited positive clinical change across several domains, including family functioning and
494 mental health of both adolescents and caregivers. In addition to indicators of improved
495 family relationship quality, we also observed changes in harsh or violent behaviors related to
496 child maltreatment and intimate partner violence, as well as improvements in alcohol-related
497 problems. Effect sizes were large for primary outcomes—all above 1.5 standard
498 deviations—and ranged from medium to large across multiple secondary outcomes as well.
499 Qualitative and clinical data further supported that the changes experienced by families were
500 clinically meaningful across domains. This study builds on the growing body of evidence
501 supporting the important role of family-based interventions in global mental health (Knerr et
502 al., 2013; Mejia et al., 2012). It adds unique elements of testing an approach for the
503 highest-need families that applies a broader range of family therapy strategies that focus
504 beyond the parent-child dyad in combination with individual-level mental health strategies

505 (Patterson, Edwards, & Vakili, 2018).

506 Observing improvements at the individual, dyadic, and whole family levels is
507 particularly encouraging as one of our central questions was whether TP is designed to
508 achieve too many goals within one intervention. While there is a clear need to target
509 multiple levels simultaneously—especially when addressing family risk factors for child mental
510 health and violence—there is a potential risk that combining intervention strategies and
511 incorporating a wide range of goals during the course of treatment could dilute treatment
512 effects. Results do not indicate that this occurred, suggesting that the streamlining of
513 clinical strategies into discrete steps and aiming to maximize commonalities across modules
514 may have been an effective method for developing an intervention with numerous goals for
515 use by lay counselors. This approach is analogous in some ways to other very promising
516 transdiagnostic approaches used in individual treatment that also emphasize the efficiency
517 and effectiveness of using core clinical strategies matched to specific client needs (Weisz,
518 Bearman, Santucci, & Jensen-Doss, 2017). These include the common elements treatment
519 approach that has been applied in other LMICs (L. K. Murray et al., 2014; L. Murray et al.,
520 2018). Results of the current study suggest that many of these same principles are applicable
521 for family-level treatment as well.

522 One advantage of an intervention that incorporates a components-based approach
523 alongside solution- and systems-based family therapy strategies is that families lead the
524 process of defining goals and setting action plans. This allows for the natural integration of
525 context- and culture-specific material as it arises. In this context, financial constraints and
526 alcohol use emerged as two very common topics that were central to problems in family
527 relationships and mental health; these were often connected, as spending on alcohol was a
528 major problem in households where resources were extremely scarce. The TP steps allowed
529 counselors to coach families through problem-solving and skills development applied to these
530 specific challenges even though the intervention does not explicitly include alcohol reduction
531 strategies or finance-related assistance or skills building. In many cases, this was effective, as

532 families recognized interaction patterns that were blocking their ability to problem-solve
533 more effectively in order to cope with very challenging circumstances. That said, even given
534 the ultimate positive results across families, the course of treatment was more difficult for
535 families impacted by more serious patterns of drinking and more severe poverty, raising the
536 question of when more specific interventions may be needed. There may be thresholds, for
537 instance, at which specialized substance use treatment is beneficial as an adjunctive
538 treatment, leading to an overall more efficient and effective process. Other culture- and
539 context-influenced factors also arose during treatment, including problems in extended family
540 relationships, concern related to HIV risk, issues of favoritism and discrimination affecting
541 orphans in households, and pervasive family issues related to the often rigid gender roles in
542 this setting. These were predicted based on our formative qualitative work, and pilot results
543 suggest that the flexibility of TP allowed counselors to address these issues directly within
544 the intervention steps in ways that were tailored to specific family dynamics and needs.

545 Process evaluation results were also promising, with detailed results and
546 implementation facilitators and challenges described elsewhere (E. S. Puffer et al., under
547 review). In this pilot study, it proved feasible to identify lay counselors who were already
548 serving as informal counselors in their communities and to train these individuals to reach
549 relatively high levels of fidelity to the intervention and clinical competency. While lay
550 counselors have been trained successfully in a wide variety of therapeutic strategies in
551 LMICs (Joshi et al., 2014; D. R. Singla et al., 2017), these results are somewhat unique in
552 that (a) the lay counselors were not community health workers or recruited from within a
553 health system or non-governmental organization and (b) TP, while manualized, is more
554 flexible and responsive to unique needs than many manualized approaches. As examples,
555 sessions are not time-limited, counselors are expected to follow the lead of families in
556 solution-generation, and the ways steps are implemented are based on responses of the family
557 and clinical progress. Many counselors' ability to develop the clinical awareness needed to
558 carry out these solution-focused and systems-based strategies was encouraging for the

559 implementation of TP and also speaks to the value of developing other interventions that
560 incorporate these or similar principles from family therapy that have thus far only been
561 implemented in high-resource settings by professionals. The challenges that arose related to
562 shifting between typical community-based counseling practices that tended to include direct
563 advice-giving to the less direct approach of TP focused on coaching families to identify their
564 own goals and solutions (E. S. Puffer et al., under review).

565 **Limitations and Future Directions**

566 There were multiple limitations to this study to consider in interpretation of results.
567 First, the pre-post design and small sample size limit generalizability and the ability to make
568 causal conclusions. We also were unable to conduct an intent-to-treat analysis because the
569 four families who did not complete treatment did not complete the endline assessment. Most
570 of these families discontinued soon after beginning, only receiving the introductory materials
571 and were unavailable for follow-up. Lastly, the time between completion of the intervention
572 and endline data collection was not uniform across families. Given these constraints, results
573 should be interpreted as a preliminary indication of direction and magnitude of change that
574 can be tested in larger studies. The current study provides a strong foundation for future
575 trials given the inclusion of multiple outcomes across domains of family functioning, the high
576 internal consistency of even brief measures, and the use of a direct observational measure to
577 support self-report data.

578 To build on these preliminary findings, gathering further data on clinical effects of TP
579 is essential by applying experimental research designs that can establish causality. More
580 comprehensive assessment measures will also improve and expand the data on clinical
581 efficacy and allow for the incorporation of quantitative measures of unanticipated outcomes
582 that emerged in our qualitative results, such as potential economic benefits. These
583 economic-related outcomes are important to understand given the clear interactions between
584 poverty, mental health, and violence that affect populations in low-resource settings globally

585 (Lund et al., 2011). Further, future studies should prioritize examining mechanisms of
586 change to identify (a) which treatment strategies are most strongly associated with change,
587 (b) sequences of and interactions between clinical changes (e.g., how changes in alcohol use
588 affect marital relationships and vice versa), and (c) mediators and moderators of change,
589 such as demographic or socioeconomic variables that could have important implications for
590 implementation. Lastly, if TP proves effective, future work should examine the potential of
591 combining TP with individual-level mental health treatments or with poverty alleviation
592 strategies for which adding a family-based component may boost intervention effects.

593 **Conclusions**

594 This study provides preliminary evidence for the efficacy of a lay counselor-delivered
595 family therapeutic intervention delivered in a setting with scarce mental health resources.
596 Results documented improvements in family relationships and decreased family violence
597 alongside improved mental health of both children and caregivers. This intervention is unique
598 in its use of family therapy strategies that are less common among family-based interventions
599 implemented in low- and middle-income countries-particularly those delivered using a task
600 sharing approach with community-based lay providers. Findings highlight the potential of
601 these strategies as viable and promising treatment options for families experiencing high
602 levels of distress complicated by mental health concerns in low-resource settings.

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Table 1
Characteristics of treated families

ID	Members	Target Child			Female Caregiver			Male Caregiver			Marital Status
		Age	Gender	Age	Working	Education	Relation to Child	Age	Working	Education	
4	16	female	40	yes	standard 5	mother, biological	—	—	—	—	not in a union
6	13	male	33	yes	standard 3	mother, biological	42	yes	standard 5	father, biological	married, living together
7	13	female	33	no	standard 5	mother, biological	36	no	none	father, biological	married, living together
9	12	male	61	no	form 3	mother, biological	47	yes	form 4	father, biological	married, living together
9	16	female	31	yes	standard 4	mother, biological	—	—	—	—	married, living separate
5	13	male	35	yes	standard 7	mother, biological	45	yes	standard 7	father, biological	married, living together
8	17	male	35	no	standard 7	mother, biological	43	yes	form 4	father, biological	married, living together
5	12	female	39	yes	standard 8	mother, biological	43	yes	standard 8	father, biological	married, living separate
7	14	female	30	yes	standard 8	mother, biological	38	yes	standard 5	father, stepfather	married, living together
10	15	female	26	yes	standard 3	mother, biological	—	—	—	—	not in a union

Note. Members column gives the total number of people living in the household. Caregiver working status was measured at endline. Primary school in Kenya consists of Standards 1-7, and secondary school is divided into Forms 1-4.

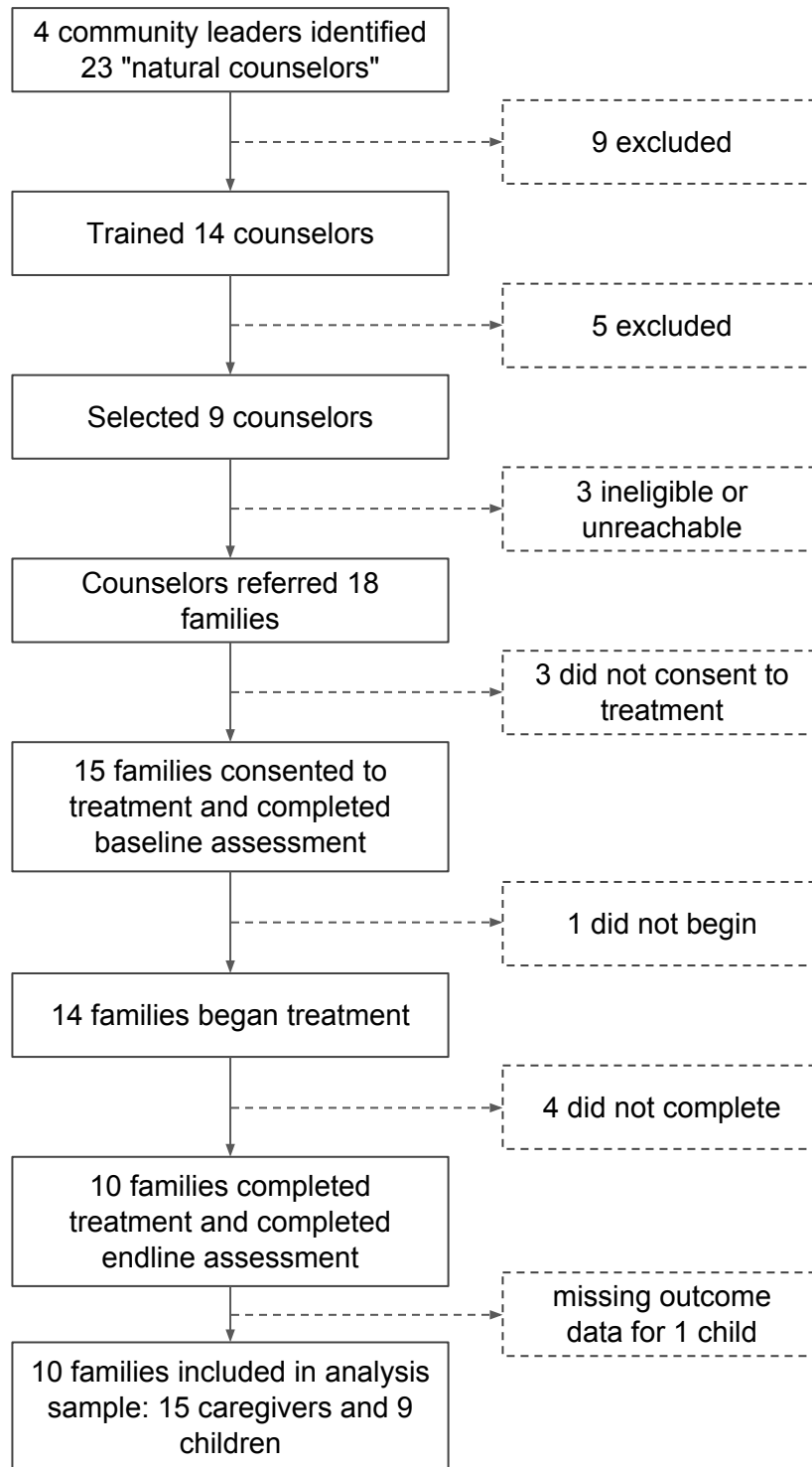
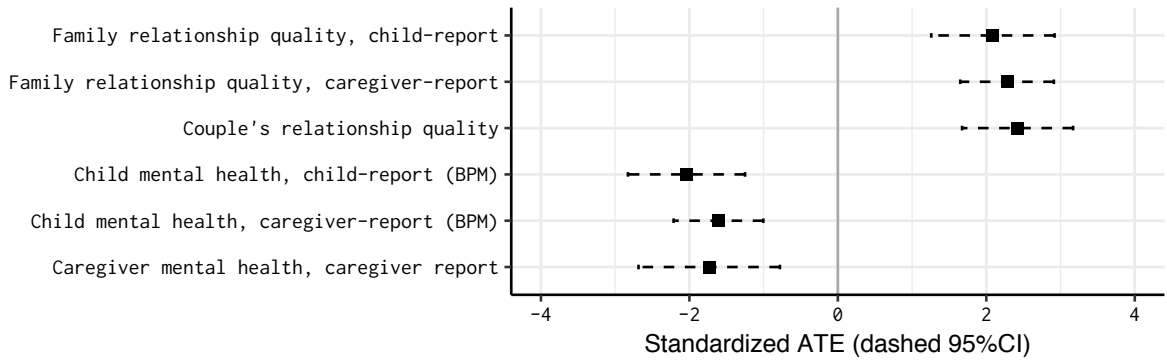
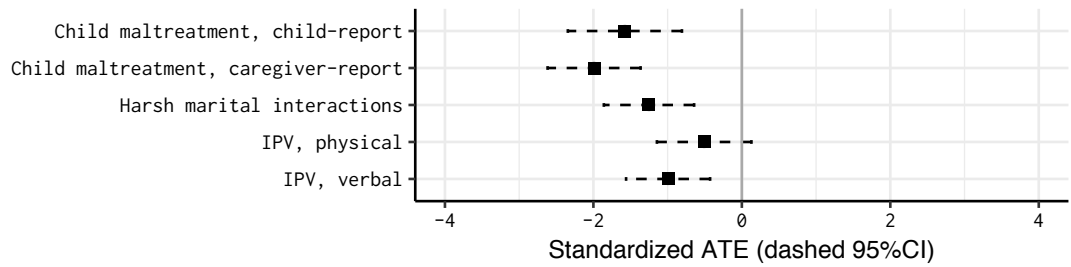


Figure 1. Participant flow diagram.

Panel A



Panel B



Panel C

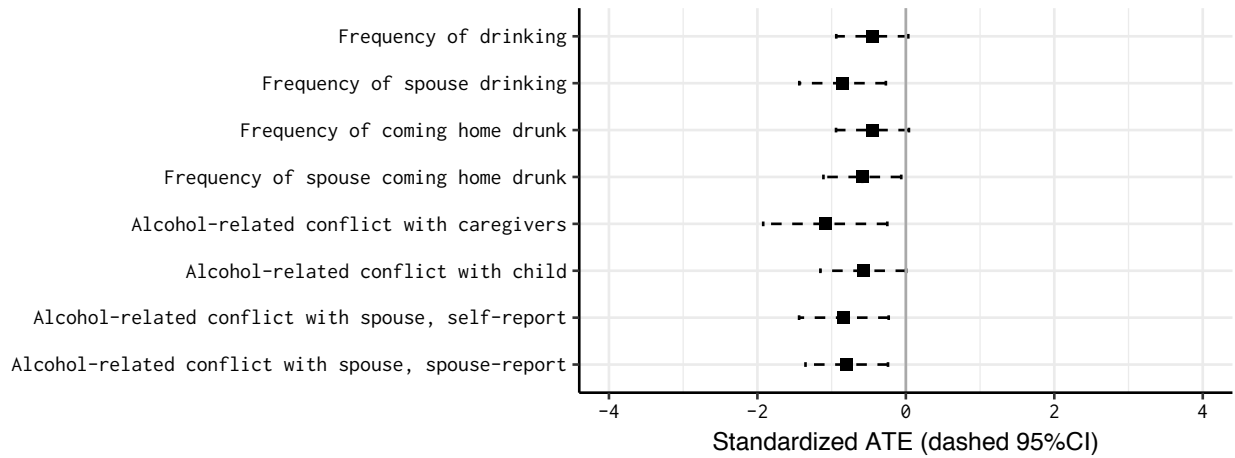


Figure 2. Standardized average treatment effect estimates. Black squares symbolize effects in the hypothesized direction. Panel A: Primary outcomes. Panel B: Secondary outcomes related to violence. Panel C: Secondary outcomes related to alcohol use.

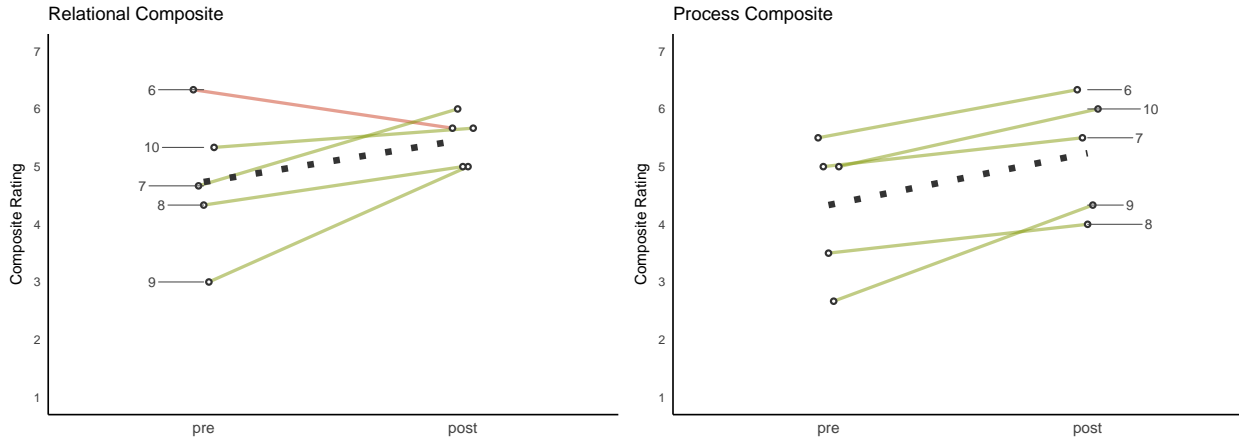


Figure 3. Pre-post composite ratings of family relationship quality for the subsample of families who were selected to participate in the family observation activities. Family identification labeled. Dotted lines represent pre-post averages.

Appendix

Table A1
Survey measures: Primary and secondary outcomes

Outcome	Items	Possible Range	Higher	Alpha
<i>Primary Outcomes</i>				
Family relationship quality, child-report	9	1-10	pos	0.78
Family relationship quality, caregiver-report	9	1-10	pos	0.82
Couple's relationship quality	11	0-5	pos	0.93
Child mental health, child-report (BPM)	19	0-2	neg	0.71
Child mental health, caregiver-report (BPM)	18	0-2	neg	0.91
Caregiver mental health, caregiver report	3	0-3	neg	0.91
<i>Secondary Outcomes</i>				
Child maltreatment, child-report	2	0-3	neg	0.84
Child maltreatment, caregiver-report	2	0-3	neg	0.88
Harsh marital interactions	1	0-4	neg	
IPV, physical	1	0-4	neg	
IPV, verbal	1	0-4	neg	
Frequency of drinking	1	0-4	neg	
Frequency of spouse drinking	1	0-4	neg	
Frequency of coming home drunk	1	0-4	neg	
Frequency of spouse coming home drunk	1	0-4	neg	
Alcohol-related conflict with caregivers	1	0-4	neg	
Alcohol-related conflict with child	1	0-4	neg	
Alcohol-related conflict with spouse, self-report	1	0-4	neg	
Alcohol-related conflict with spouse, spouse-report	1	0-4	neg	

Table A2
Average treatment effects: Primary and secondary outcomes

Outcome	Items	Possible Range	Higher	Pre		Post		Diff	Glass's Δ (95%CI)	t (df)	p
				Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)				
<i>Primary Outcomes</i>											
Family relationship quality, child-report	9	1-10	pos	5.2 (1.7)	8.7 (0.5)	3.51	2.09 (1.3,2.9)	5.8(8)	0.000		
Family relationship quality, caregiver-report	9	1-10	pos	5.6 (1.5)	8.9 (0.6)	3.34	2.28 (1.6,2.9)	7.8(14)	0.000		
Couple's relationship quality	11	0-5	pos	2.1 (1.1)	4.7 (0.4)	2.58	2.42 (1.7,3.2)	7.1(11)	0.000		
Child mental health, child-report (BPM)	19	0-2	neg	0.6 (0.3)	0.1 (0.1)	-0.54	-2.04 (-2.8,-1.3)	-6.1(7)	0.000		
Child mental health, caregiver-report (BPM)	18	0-2	neg	0.7 (0.4)	0.0 (0.0)	-0.65	-1.61 (-2.2,-1.0)	-5.8(12)	0.000		
Caregiver mental health, caregiver report	3	0-3	neg	1.5 (0.7)	0.3 (0.5)	-1.27	-1.73 (-2.7,-0.8)	-4.1(10)	0.002		
<i>Secondary Outcomes</i>											
Child maltreatment, child-report	2	0-3	neg	1.6 (0.9)	0.1 (0.3)	-1.44	-1.58 (-2.3,-0.8)	-4.7(8)	0.001		
Child maltreatment, caregiver-report	2	0-3	neg	1.6 (0.7)	0.1 (0.5)	-1.47	-1.99 (-2.6,-1.4)	-6.8(14)	0.000		
Harsh marital interactions	1	0-4	neg	2.0 (1.4)	0.2 (0.6)	-1.77	-1.25 (-1.9,-0.6)	-4.5(12)	0.001		
IPV, physical	1	0-4	neg	0.8 (1.4)	0.1 (0.3)	-0.69	-0.51 (-1.1,0.1)	-1.7(12)	0.108		
IPV, verbal	1	0-4	neg	1.7 (1.5)	0.2 (0.4)	-1.54	-0.99 (-1.6,-0.4)	-3.8(12)	0.002		
Frequency of drinking	1	0-4	neg	0.8 (1.5)	0.1 (0.4)	-0.67	-0.45 (-0.9,0.0)	-2.0(14)	0.065		
Frequency of spouse drinking	1	0-4	neg	1.6 (1.6)	0.2 (0.5)	-1.33	-0.85 (-1.4,-0.3)	-3.2(11)	0.008		
Frequency of coming home drunk	1	0-4	neg	0.7 (1.3)	0.1 (0.4)	-0.60	-0.45 (-0.9,0.0)	-2.0(14)	0.070		
Frequency of spouse coming home drunk	1	0-4	neg	1.0 (1.3)	0.2 (0.5)	-0.75	-0.59 (-1.1,-0.1)	-2.5(11)	0.032		
Alcohol-related conflict with caregivers	1	0-4	neg	1.9 (1.7)	0.0 (0.0)	-1.88	-1.09 (-1.9,-0.2)	-3.1(7)	0.018		
Alcohol-related conflict with child	1	0-4	neg	0.8 (1.4)	0.0 (0.0)	-0.79	-0.57 (-1.2,0.0)	-2.1(13)	0.051		
Alcohol-related conflict with spouse, self-report	1	0-4	neg	1.3 (1.5)	0.1 (0.3)	-1.25	-0.83 (-1.4,-0.2)	-3.0(11)	0.011		
Alcohol-related conflict with spouse, spouse-report	1	0-4	neg	1.1 (1.3)	0.1 (0.3)	-1.00	-0.80 (-1.4,-0.2)	-3.1(12)	0.009		