The Effectiveness of *Hope Groups,* a Mental Health, Parenting Support, and Violence Prevention Program for Families Affected by the War in Ukraine: Findings from a Pre-Post Study

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Abstract

Background: Nearly one in six children lived in war zones in 2021. Evidence-based psychosocial and parenting support has potential to mitigate negative impacts for parents and children co-exposed to war and displacement. In the current war in Ukraine, local mental health experts co-created and evaluated, in collaboration with global experts, the effectiveness of psychosocial and parenting support groups, called *'Hope Groups',* on improvements in mental health, positive parenting, and violence against children after the 2022 Russian invasion.

Methods: Participants (n=577) included Ukrainian caregivers co-residing with children, and non-resident informal caregivers. Internally displaced, externally displaced, and those living at-home in war-torn regions were invited to groups by trained Ukrainian peer facilitators. Using a pre-post design, we compared individual level frequency measures at baseline, midline, and endline using paired t-tests and multi-level regression models to assess changes in 4 mental health, and 9 parenting and child health outcomes.

Findings: Compared to baseline, every mental health, parenting, and child health outcome improved significantly at midline and endline. Mental health ratings showed endline reductions in depressive symptoms of 56.8% (95% CI: -59.0,-54.3), and increases in hopefulness, coping with grief, and self-care, ranging from 62.0% (95% CI: 53.6,71.3) to 77.0% (95% CI: 66.3,88.3). Significant improvements in parenting and child health outcomes included monitoring children, reinforcing positive behavior, supporting child development, protecting child, nonviolent discipline, and child verbalizing emotions. By endline, emotional violence, physical violence, and child despondency had dropped by 57.7% (95% CI: -63.0%,-51.9), 64.0% (95% CI: -79.0,-39.5), and 51.9% (95% CI: -45.1,-57.9), respectively. Outcomes stratified by displacement status remained significant, as did those according to facilitator type (lay versus professional).

Interpretation: This study shows preliminary evidence for feasibility and effectiveness of Hope Groups for war-affected Ukrainian caregivers, on improved mental health, positive parenting, and reduced violence against children.

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Background

Nearly one in six children live in war zones in 2023,[1] and over 2 billion people live in countries affected by conflict, fragility, or violence.[2] In Ukraine alone, Russia's full-scale invasion since February 2022, forced over 13 million Ukrainians, mostly women and children, to flee their homes during the first 12 months of war.[3] The invasion has caused mass casualties, separation of families, loss of homes, and economic upheaval. By June 2023, 6.3 million Ukrainians were externally displaced outside their country, and 5 million more remained internally displaced within Ukraine.[4] Missile, rocket, and drone attacks continue threatening lives of families and children, and destruction to infrastructure means loss of heat, gas, electricity, and water.[5,6] As the war continues, 4.5 million displaced Ukrainian women and children have returned to Ukraine to a highly uncertain future.[7]

Exposure to war leads to long-term consequences on health and well-being for children and families,[8] such as mental health distress, complex grief, violence, and exploitation.[9,10,11,12] The World Health Organization (WHO) estimates that 22.1% of any conflict-affected population experiences a mental disorder.[13] At the individual level, symptoms worsen over time, and children are among the most vulnerable.[14] Almost two of every three Ukrainian children were displaced, often separated from their fathers as they fled with their mothers (UNICEF, 2022). These risks, considered Adverse Childhood Experiences (ACEs), may have enduring consequences, including depression, suicide ideation, post-traumatic stress disorder (PTSD), violence, school drop-out, insecure housing,[7] and subsequent chronic and infectious diseases.[15] Ukrainian children also face marked educational challenges, with vast damage to schools[16] and ongoing threats causing 40% of students to be enrolled online (January 2023). These conditions place high demands on parents and teachers to provide educational support amidst frequent air raids, blackouts, and internet outages.[17] Overall, 75% of Ukrainian parents state their children show symptoms of psychological traumatization.[18]

Both theory and evidence suggest[19] that strengthening mental health, parenting skills, and relationships between co-exposed parents and children in times of war is important for building resilience in children.[20] A systematic review of 38 studies among 'co-exposed' parents and children living together in war zones (displaced and non-displaced) found that war-time parenting practices showed less warmth (e.g., decreased praise or playing with children), and greater hostility (e.g., increased verbal or physical violence); these negative parenting practices were associated with increased child maladjustments, including post-traumatic stress symptoms, depression, and anxiety.[10] War-time threats and uncertainties present immense challenges in delivering flexible, contextualized, and scalable mental health, positive parenting. and violence prevention support programs to traumatized caregivers.[21] Although such programs can play a pivotal role in improving outcomes for caregivers and children amidst traumatizing

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circumstances,[22] little is known about feasible approaches for delivering such evidence-based programming in the Ukrainian context.[23,24]

Therefore, this study used a pre-post design to evaluate preliminary impact of a 10-session psychosocial and parenting support group called *Hope Groups* among Ukrainians internally displaced, living at-home in war-torn regions, and externally displaced across 10 countries, in improving mental health, strengthening positive parenting, and preventing violence against children.[25]. If initial results are positive, *Hope Groups* could be further tested in randomized trials, and adapted by government, donors, Non-Governmental Organizations (NGOs), Faith-Based Organizations (FBOs), and faith and community networks in conflict contexts within and beyond Ukraine.

Methods

Intervention Development. Six weeks after the full-scale invasion, Ukrainian women displaced in a shelter in Poland participated in a consultation with the authors. They shared an urgent need for mental health and parenting support to equip them to care for themselves and their children. Given the Ukrainian culture values privacy, they proposed support groups that would be small (3-5 persons) and include informal non-resident caregivers. As a response, through a community-based participatory research process, the *Hope Groups* team – co-led by social workers and psychologists from Ukraine, World Without Orphans, Parenting for Lifelong Health (PLH) at the University of Oxford, and VIVA – designed a three-phase model to deliver evidence-based psychosocial and parenting support for families affected by acute or protracted wartime crisis. Phases varied in delivery intensity: *Phase I* - Ukraine Parenting Tips sheets or social media messages, designed for the first 4 weeks of crisis onset, strengthen positive parenting[26] and reached over 9 million persons in Ukraine by April of 2022;[27] *Phase II – Hope Group* sessions 1-4, designed for acute and protracted crisis; and *Phase III – Hope Group* sessions 5-10, designed to help families living in protracted crisis transition to a new reality (Supplementary Material (SM), Table S1). This study evaluates Phases II and III above, delivered as one continuous program called 'Hope Groups'.

We used the TIDieR (Template for Intervention Description and Replication) Reporting Guidelines. Hope Groups were built on evidence-based content, and Ukrainian partners led all contextual adaptations. Hope Groups were designed as peer-led, semi-structured psychosocial and parenting support groups to build mental health and parenting skills over 10 sessions, taking into consideration lessons learned during the COVID-19 pandemic.[28] Mental health content in the sessions used key principles for psychosocial support in armed conflict to build participant skills in developing new and strengthening existing coping approaches, stress reduction, and self-care, to address war-time challenges.[29] Caregiving and violence prevention content of *Hope*

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Groups was based on programs developed by Parenting for Lifelong Health at the University of Oxford[30] as endorsed by WHO and UNICEF, with evidence of effectiveness from 15 randomized trials. Content was also informed by the 'Ukraine Parenting' resources (www.ukraineparenting.com) launched by the Global Initiative to Support Parents, WHO, PLH, UNICEF, United Nations High Commissioner for Refugees (UNHCR), United Nations Office on Drugs and Crime, Global Partnership to End Violence Against Children, and Early Childhood Development Action Network.[31,32] Displaced Ukrainian partners adapted all content to be appropriate for Ukrainian culture, decided key implementation strategies such as recruitment methods and the size of support groups (3-5 people, respecting a highly private culture), and created the intervention's name: "We should call the intervention 'Hope Groups'", they said, "because what we really need is a way to find hope again."

Design and Participants.
Hope Group participants (n=577) included displaced and nondisplaced Ukrainian caregivers (both co-residing with children and non-resident) over age 18 (women and men). Many of the displaced lived in shelters supported by FBO's and UNHCR in Poland and Western Ukraine. A master-trainer used a standardized guide to provide 8 hours of training for 39 Ukrainian facilitators either virtually or in-person. Trained peer facilitators recruited participants from November 2022 through July 2023 through personal networks in FBOs, NGOs, refugee shelters, churches, and aid distribution sites, in order to be sensitive to cultural skepticism toward psychosocial support groups.

Eligibility included Ukrainians affected by war in any capacity, including co-residing parents and caregivers, as well as non-resident caregivers who provided informal care to children.

Procedures. We collected baseline, midline, and endline data via self-administered surveys on personal smartphones, adapting questions from validated scales (Table S1, S2). Crisis adaptations essential for the war context ensured the survey was short, non-triggering, and culturally appropriate. The University of Oxford Ethics Committee approved this study (Approval #R84832/RE001). Informed consent was obtained on web-based links using mobile phones. *Hope Groups* delivery occurred in-person, virtually, or in hybrid format, led by mental health professionals or lay-trained facilitators . No incentives were offered, and confidentiality was maintained. Our protocol required immediate referrals to child protection and health services in the event any participant reported severe abuse, rape, or other significant harm. However, no such referrals were needed. Ukrainian mental health experts translated all materials into Ukrainian.

Outcomes. Each outcome used continuous frequency rating scales, with single item responses, to assess mean change and percent change in 'days in the last week.' This approach was used to strengthen recall amidst ongoing distress. For all participants, we measured four outcome ratings

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related to adult mental health: depression score, processing grief, hopefulness about the future, and self-care practices. For parents and caregivers co-residing with children, we further measured nine outcomes related to parenting and child health: physical violence, emotional violence, monitoring child, reinforcing positive behavior, supporting child development, child protection, nonviolent discipline; and parent/caregiver report of child despondency and child verbalizing emotions. (Table S2).

Analytic Approach. We independently analyzed individual level outcomes using paired t-tests (R package Stats, v 4.3.1) to compare outcomes at baseline-to-midline (after 4-sessions) and baseline-to-endline (after 10-sessions), which estimated the mean changes in days per week and associated percent change, during the respective periods. Statistical uncertainty was quantified using bias-corrected and accelerated (BCa) bootstrapping with 95% bootstrap uncertainty ranges for baseline-midline and baseline-endline estimates to account for abnormal distributions (R package "Boot", v 1.3-28.1). We then constructed linear models adjusted for age and sex to evaluate any deviations from paired t-test results, to assess the presence of confounding. We also employed paired t-tests stratified by displacement status (internal, external and non-displaced), to examine potential differences in intervention effect between sub-groups. To assess potential effect modification by facilitator type, we used linear models regressing all outcomes on the interaction between all three timepoints and facilitator training (mental health professional versus lay leader), with a random effect on each participant. Models were not adjusted for covariates, in order to yield both the estimated change in outcomes within the referent group (lay-trained) and the additional change within the groups led by professionally trained facilitators. As a sensitivity analysis, we considered the past week as person-time and days the outcome occurred as a count, and we constructed Poisson models regressing all outcomes on all three timepoints with a random effect on each participant to estimate incidence rate ratios (IRRs); over dispersion was assessed prior to proceeding with Poisson models. We compared the magnitude and direction of IRRs with our primary results from paired t-tests and adjusted linear regression.

Given the absence of a control group in this pre-post study, we investigated if temporal trends occurred over the study duration that may have influenced pre-post results linked to the intervention. To investigate if participant outcomes improved over time independently of the intervention, we used t-tests to compare baseline outcome measures during the first half of the recruitment period (November 2022-March 2023) to the second half of the recruitment period (March 2023-July 2023) and assess whether statistically significant differences in baseline outcomes were observed over the duration of our study.

Role of the Funding Source

The funders of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report.

Results

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Our sample included 577 Ukrainian caregivers affected by war, 66% (381) of whom were parents and co-residing caregivers, while the remaining 34% were non-resident informal caregivers (Table 1). Participants were aged 20-29 (29.1%), 40-49 (26.7%), or 60+ (21.7%), and 94.2% were female. Participants were internally displaced within Ukraine (50.8%), externally displaced outside of Ukraine (27.6%), or living at-home in war-torn areas (21.5%). Most participants were in Ukraine (69%) or Poland (25%), while the remaining 6% were in 8 other countries throughout Europe. In-person Hope Groups were preferred (78%) over virtual or hybrid delivery (21.1%); 63.3% of participants had a facilitator with prior training in mental health, counseling, or social work.

Our examination of the full 10-week intervention found statistically significant improvements across all mental health, parenting, and child outcomes when examining change from baseline-to-endline (Fig 1). By endline, the frequency of self-care practices and hopefulness, as well as positive parenting behaviors, including reinforcing positive behaviors, monitoring child, nonviolent discipline, and protecting child had increased to 5 days per week or greater (Fig 1). We also found significant improvement in all outcomes from baseline-to-midline, which increased and remained significant for baseline-to-endline measures (Table 2). For mental health outcomes, we found midline and endline reductions in depression ratings of 38.3% (95% CI -42.2, –34.0; -1.3 days/week) and 56.8% (95% CI -59.0, –54.3%; -1.8 days/week), respectively; and increases in hopefulness, coping with grief, and self-care ranging from 34.0% (95% CI 27.5, 41.2; 1.2 days//week) to 44.9% (95% CI 37.2, 53.2; 1.3 days/week) at midline; and 62.0% (95% CI 53.6%, 71.3%; 2.2 days//week) to 77.0% (95% CI 66.3%, 88.3%; 2.2 days/week) at endline.

All positive parenting outcomes also significantly improved (Table 2), with respective increases from baseline-to-midline and baseline-to-endline of monitoring child by 19% (95% CI 14.3, 25.4; .87 days/week) and 39% (95% CI 32.0, 47.2; 1.8 days/week); protecting child by 13% (95% CI 8.6, 18.4; .65 days/week) and 29% (95% CI 22.4, 34.5; 1.4 days/week); nonviolent discipline by 15% (95% CI 8.4, 21.5; .59 days/week) and 27% (95% CI 18.7, 35.5; 1.1 days/week); and reinforcing positive behavior by 17% (95% CI 12.5, 22.2; .74 days/week) and 37% (95% CI 30.9, 34.7; 1.6 days/week. Occurrences of reported child outcomes also showed improvements with respective midline and endline decreases in emotional violence by 34% (95% CI -40.0, -27.3; -.76 days/week) and 58% (95% CI -53.9, -63.0, - 1.3 days/week), physical violence by 33% (95% CI -59.9, -1.1; -.12 days/week) and 64% (95% CI -38.5, -79.0; -.23 days/week), and child despondency by 33% (95% CI -39.4, -26.8; -.78 days/week) and 64% (95% CI 38.5, 79.0; -.23 days/week). Child(ren)'s verbalizing emotions by expressing their problems and worries in meaningful conversations with their parent increased by 29% (95% CI 21.2, 37.9; 1.0 days/week) and 45.7% (95% CI 34.5, 57.2; 1.6 days/week), respectively. Results were unchanged when adjusting for age and sex (Table S3).

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Findings stratified by displacement type (internally, externally, non-displaced) revealed that all mental health and parenting outcomes remained statistically significant for each displacement types from baseline-endline (Table 3), though larger improvements were found among displaced populations. On average, externally displaced participants had worse outcome levels at baseline, compared with internally displaced and non-displaced participants, and experienced greater relative improvements by endline for 10 outcomes (Fig 2).

Linear models assessing interaction by facilitator background (mental health professional versus lay-facilitator) revealed that participants in both groups experienced significant improvements from baseline-endline across all mental health, parenting, and child outcomes, indicating Hope Groups are effective with lay-trained or professional trained facilitators. Of note, participants with mental health professional facilitators experienced additional improvements among all mental health outcomes and all parenting outcomes except physical violence, using a statistically significant interaction threshold of $p < .05$ (Table S4). Improvements in child outcomes (child despondency and child verbalizing emotions) did not significantly differ between lay-trained and professionally trained facilitators.

Results from Poisson models estimating incidence rate ratios (IRRs) at midline and endline remained consistent with paired t-test results (Table S5).

We found no statistically significant changes in baseline outcome measures during the second half of our eight-month study period, compared to the first half, suggesting that it was unlikely that temporal trends could have explained observed improvements in participant outcomes from baseline-midline and baseline-endline over the study duration (Table S6).

Discussion

Delivery of the *Hope Group* intervention for Ukrainians during 2022-2023 of the Russian invasion led to significant improvements in mental health, positive parenting, and violence prevention outcomes. Strengthened mental health was shown by the 60% reduction in the frequency of participants' depressive symptoms, over a 50% increase in hopefulness and coping with grief, and nearly an 80% improvement in self-care. Among parents and caregivers, over 50% reductions occurred in the frequency of physical abuse and 60%, in emotional abuse. Significant improvements occurred for all remaining outcomes reported by caregivers, including monitoring children, reinforcing positive behavior, supporting child development, child protection, nonviolent discipline; decreased child despondency and increased frequency of children verbalizing their emotions. After ten sessions, a two-fold improvement in all outcomes occurred, compared to midline. These findings suggest that *Hope Groups* were effective both as a 4-session *acute crisis transition* intervention and became more effective in strengthening

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mental health and positive parenting after the full 10-week *prolonged crisis transition* intervention.

WHO prevalence estimates show that over one in five people in post-conflict settings have mental health disorders (e.g., anxiety, depression, post-traumatic stress disorder, etc.).[33] Given the very high prevalence of these disorders, experts confirm the urgency in conflict settings of both strengthening sustainable mental health care, and implementing psychosocial interventions for war-affected populations that strengthen community care, self-help, and support.[33] *Hope Groups* are an example of this latter type of intervention. Evidence further shows that mental health interventions in crisis contexts require cultural adaptation; can be effectively led by well-trained lay staff; and hold promise for expanded reach through virtual delivery.[34] *Hope Groups* development, implementation, and findings were aligned with this evidence.[35]

Our findings among war-affected parents caring for children across the developmental spectrum from birth to 17 years of age, showed that *Hope Groups* led to marked improvements in all outcomes for those internally displaced, externally displaced, and non-displaced. These benefits were observed among Hope Group participants led by both mental health professionals and lay-trained facilitators.

By comparison, a review of 14 experimental or quasi-experimental studies of parenting interventions among forcibly displaced populations (among Somali, South Sudanese, Burmese, Palestinian, Lebanese, and Bosnian groups) found evidence of effectiveness for improving caregiver mental health, positive parenting, psychosocial wellbeing, and/or parental stress management.[36] For example, findings were promising across all these outcomes for the Caregiver Support Intervention pilot study implemented among Syrian refugees living in Lebanon.[39] Beyond this, other programs showed mild to moderate improvement in some domains for parenting practices, child psychosocial outcomes, and parent mental health.[36] To our knowledge, our *Hope Group* study is the first to focus on displaced and non-displaced Ukrainians affected by the war. We found that *Hope Groups* improvements were more comprehensive and generally of greater magnitude than those reported in previous studies.

We considered several limitations. First, because war circumstances presented a mental health and parenting emergency, we were limited to a pre/post design and thus, lacked a counterfactual control group. However, we found that confounding by potential temporal improvements in outcomes that may have occurred outside our intervention were unlikely, since baseline outcome measures among those enrolled during the second half of the rolling enrollment period, compared to those enrolled during the first half, were essentially unchanged. We are currently in the early part of a next-stage cluster randomized trial to take the evidence-base forward.[40] Second, collinearity between displacement status and delivery-type (in person vs virtual) limited our ability to evaluate the effectiveness of virtual delivery in the non-displaced population. The field situation affected mode of delivery and a more controlled design would allow for

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comparisons between virtual, in person and hybrid delivery modes. This has specific implications for scale-up of such interventions and the possibility to enhance reach when in-person provision is compromised by war. Third, mental health measures may be strengthened in future studies by use of validated and diagnostic scales. Finally, the small number of male participants limited our ability to generalize to a male population. Within this crisis situation, men were more likely to be engaged in active duty and thus less available for the intervention. For future studies, efforts could valuably encourage male participation. Avenues for expanding psychosocial support to men could be in the form of a dedicated provision, partner invitation, or outreach to venues where men may be available for recruitment, such as within a robust chaplaincy.[41]

In conclusion, this pre-post evaluation showed that participation in Hope Groups was associated with marked improvements in mental health, positive parenting, and prevention of violence against children, among displaced and non-displaced Ukrainians. The promising success of *Hope Groups* is striking given the extreme level of trauma that Ukrainian children and families are experiencing. Our research suggests that adaptations of the *Hope Groups* model might be a highly promising intervention in conflict and potentially other crisis contexts.

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Table 1. Characteristics of Ukrainian "Hope Group" Participants from 2022-2023

	Parents and Co-residing Caregiver (N=381)	Non-resident Informal Caregivers (N=196)	Total Sample (N=577)
Age			
18-19	0 (0%)	12 (6.1%)	12 (2.1%)
20-29	23 (6.0%)	25 (12.8%)	48 (8.3%)
30-39	148 (38.8%)	20 (10.2%)	168 (29.1%)
40-49	132 (34.6%)	22 (11.2%)	154 (26.7%)
50-59	37 (9.7%)	32 (16.3%)	69 (12.0%)
60+	40 (10.5%)	85 (43.4%)	125 (21.7%)
Sex			
Female	359 (94.2%)	165 (84.2%)	524 (90.8%)
Male	21 (5.5%)	31 (15.8%)	52 (9.0%)
Displacement Status			
Externally Displaced (in a country other than Ukraine)	116 (30.4%)	43 (21.9%)	159 (27.6%)
Internally Displaced (in Ukraine)	179 (47.0%)	114 (58.2%)	293 (50.8%)
Living at Home (not displaced)	85 (22.3%)	39 (19.9%)	124 (21.5%)
Country Location			
Cyprus	10 (2.6%)	6 (3.1%)	16 (2.8%)
Germany	6 (1.6%)	1 (0.5%)	7 (1.2%)
Italy	1 (0.3%)	0 (0%)	1 (0.2%)
Poland	103 (27.0%)	41 (20.9%)	144 (25.0%)
Ukraine	256 (67.2%)	142 (72.4%)	398 (69.0%)
United Kingdom	5 (1.3%)	1 (0.5%)	6 (1.0%)
Belgium	0 (0%)	1 (0.5%)	1 (0.2%)
Spain	0 (0%)	3 (1.5%)	3 (0.5%)
Session Format			
In-person	280 (73.5%)	170 (86.7%)	450 (78.0%)
Remote meetings	98 (25.7%)	24 (12.2%)	122 (21.1%)
Facilitator Background			
Lay Person	103 (27.0%)	51 (26.0%)	154 (26.7%)
Mental Health Professional or Social Worker	265 (69.6%)	129 (65.8%)	394 (68.3%)

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Table 2. Primary Paired T-Test Results Among Ukrainian "Hope Group" Participants in 2022-2023, Comparing Baseline-Midline and Baseline-Endline

	Baseline to Midline				Baseline to Endline			
	N	Mean Difference in Days (95% CI)	P-value	% Change (95% CI)	N	Mean Difference in Days (95% CI)	P-value	% Change (95% CI)
Full Sample (N=577)								
Depression rating	576	-1.25 (-1.42, -1.08)	<.001***	-38.25% (-42.24, -34.04)	554	-1.84 (-2.04, -1.64)	<.001***	-56.78% (-59.01, -54.32)
Self-Care Practices	575	1.29 (1.11, 1.46)	<.001***	44.86% (37.16, 53.23)	551	2.21 (2.00, 2.41)	<.001***	76.96% (66.25, 88.26)
Hopefulness about Future	577	1.15 (.97, 1.34)	<.001***	33.96% (27.46, 41.22)	552	2.21 (1.99, 2.41)	<.001***	61.96% (53.62, 71.28)
Coping with Grief	571	0.91 (.69, 1.11)	<.001***	37.72% (27.07, 48.52)	546	1.56 (1.32, 1.80)	<.001***	66.51% (53.45, 80.37)
Parents and Co-residing Caregivers Only (N=381)								
Physical Violence	365	-.12 (-.23, -.011)	.039*	-33.08% (-53.9, -1.13)	355	-.22 (-.33, -.12)	<.001***	-64.00% (-78.98, -38.53)
Emotional Violence	367	-.76 (-.94, -.58)	<.001***	-33.90% (-39.96, -27.25)	357	-1.32 (-1.52, -1.13)	<.001***	-57.69% (-62.97, -51.90)
Nonviolent Discipline	366	.59 (.34, .82)	<.001***	14.84% (8.37, 21.48)	356	1.09 (.78, 1.37)	<.001***	26.97% (18.74, 35.53)
Protecting Child	366	.65 (.43, .87)	<.001***	13.28% (8.61, 18.44)	357	1.40 (1.15, 1.64)	<.001***	28.54% (22.41, 34.46)
Monitoring Child	367	.87 (.67, 1.09)	<.001***	19.35% (14.33, 25.36)	356	1.83 (1.58, 2.09)	<.001***	39.01% (32.00, 47.15)
Supporting Child Development	368	.66 (.46, .85)	<.001***	15.99% (10.78, 21.53)	358	1.66 (1.43, 1.90)	<.001***	39.54% (32.72, 47.49)
Reinforcing Positive Behavior	365	.74 (.56, .92)	<.001***	17.15% (12.54, 22.24)	356	1.62 (1.39, 1.85)	<.001***	37.45% (30.90, 44.74)
Child Despondency	364	-.78 (-.97, -.59)	<.001***	-33.37% (-39.40, -26.80)	357	-1.19 (-1.41, -1.00)	<.001***	-51.89% (-57.89, -45.09)
Child Verbalizing Emotions	363	1.00 (.77, 1.23)	<.001***	29.16% (21.24, 37.85)	353	1.57 (1.28, 1.87)	<.001***	45.66% (34.47, 57.20)

* Indicates level of statistical significance. Bias-corrected and accelerated(bCA) bootstrapping performed well with paired t-tests and poorly with linear regression; therefore, we use paired t-tests with bCA bootstrapping for unadjusted results and linear regression with percentile bootstrapping for adjusted results in Table S4; results remained consistent.

Table 3. Stratified Paired T-Test Results Among Ukrainian "Hope Group" Participants in 2022-2023, Comparing Baseline-Endline and Stratified by Displacement Status

	Non-Displaced (At Home in Ukraine)	Internally Displaced (in Ukraine)	Externally Displaced (Outside Ukraine)

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	Estimate *(Absolute Change in Days per Week each Outcome Occurred)*	**95% CI**	**Estimate** *(Absolute Change in Days per Week each Outcome Occurred)*	**95% CI**	**Estimate** *(Absolute Change in Days per Week each Outcome Occurred)*	**95% CI**
Full Sample (N=577)						
Depression rating	-1.26	(-1.71, -0.86)	-2.17	(-2.45, -1.89)	-1.66	(-2.00, -1.29)
Self-Care Practices	1.59	(1.17, 2.05)	2.31	(2.04, 2.60)	2.46	(2.06, 2.85)
Hopefulness about Future	1.61	(1.11, 2.02)	1.96	(1.67, 2.22)	2.77	(2.34, 3.16)
Coping with Grief	1.39	(0.88, 1.90)	1.14	(0.78, 1.45)	2.47	(2.00, 2.88)
Parents and Co-residing Caregivers Only (N=381)						
Physical Violence	-0.30	(-0.65, -0.08)	-0.20	(-0.35, -0.01)	-0.27	(-0.44, -0.16)
Emotional Violence	-1.29	(-1.74, -0.84)	-1.49	(-1.81, -1.18)	-1.07	(-1.35, -0.85)
Monitoring Child	1.57	(1.05, 2.15)	1.48	(1.16, 1.81)	2.42	(2.00, 2.87)
Protecting Child	0.64	(0.14, 1.13)	1.32	(0.99, 1.65)	2.12	(1.72, 2.58)
Supporting Child Development	1.08	(0.63, 1.64)	1.47	(1.15, 1.82)	2.42	(2.03, 2.83)
Reinforcing Positive Behavior	1.04	(0.60, 1.62)	1.34	(1.03, 1.67)	2.49	(1.99, 2.85)
Nonviolent Discipline	0.81	(0.23, 1.36)	0.50	(0.05, 0.93)	2.21	(1.78, 2.68)
Child Despondency	-1.01	(-1.51, -0.58)	-1.22	(-1.53, -0.91)	-1.23	(-1.59, -0.87)
Child Verbalizing Emotions	1.53	(0.96, 2.19)	1.18	(0.73, 1.60)	2.24	(1.73, 2.73)

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Figure Legends

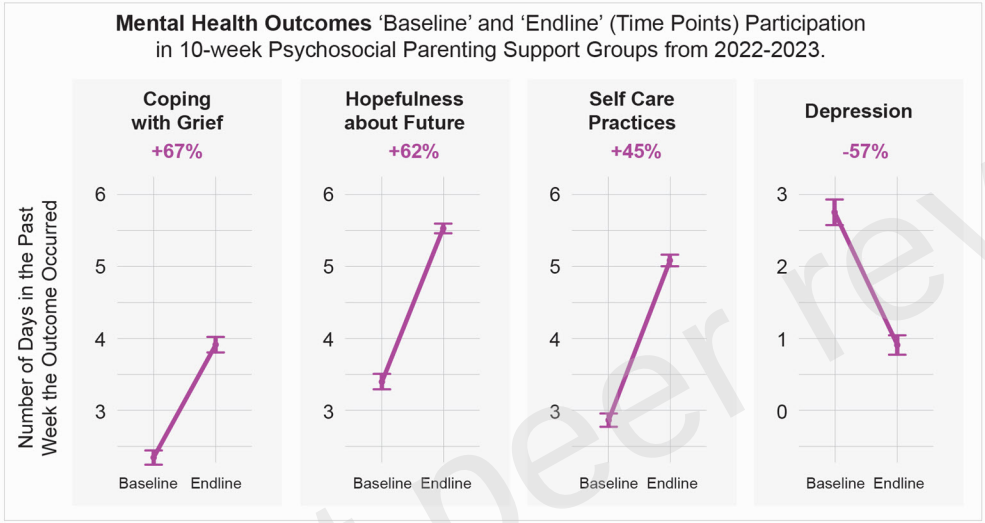
Figure 1: Ukrainian Hope Group Baseline-Endline Results

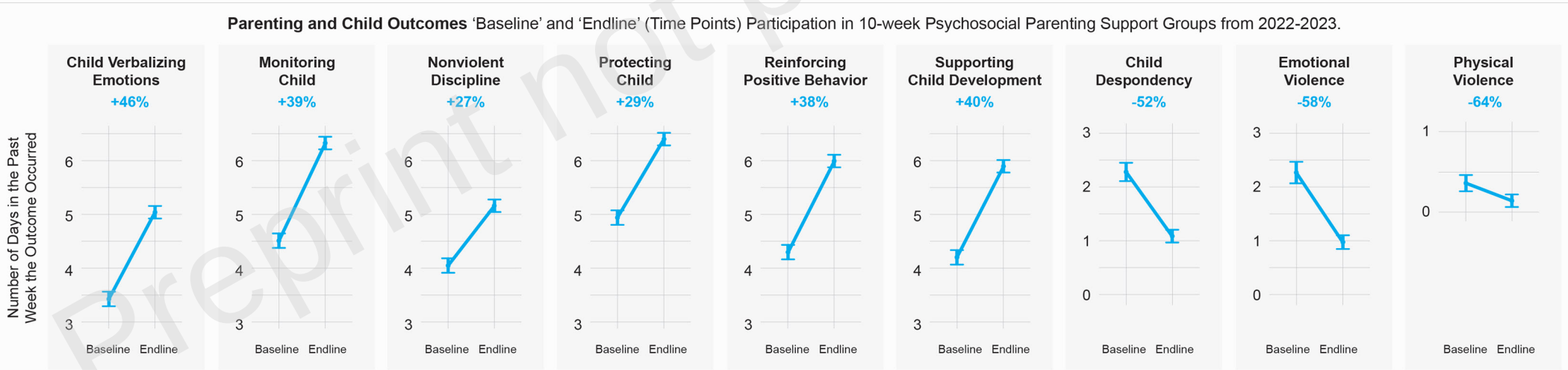
Figure 2. Ukrainian Hope Group Baseline-Endline Results Stratified by Displacement Status

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Figure 1. Ukrainian Hope Group Baseline-Endline Results

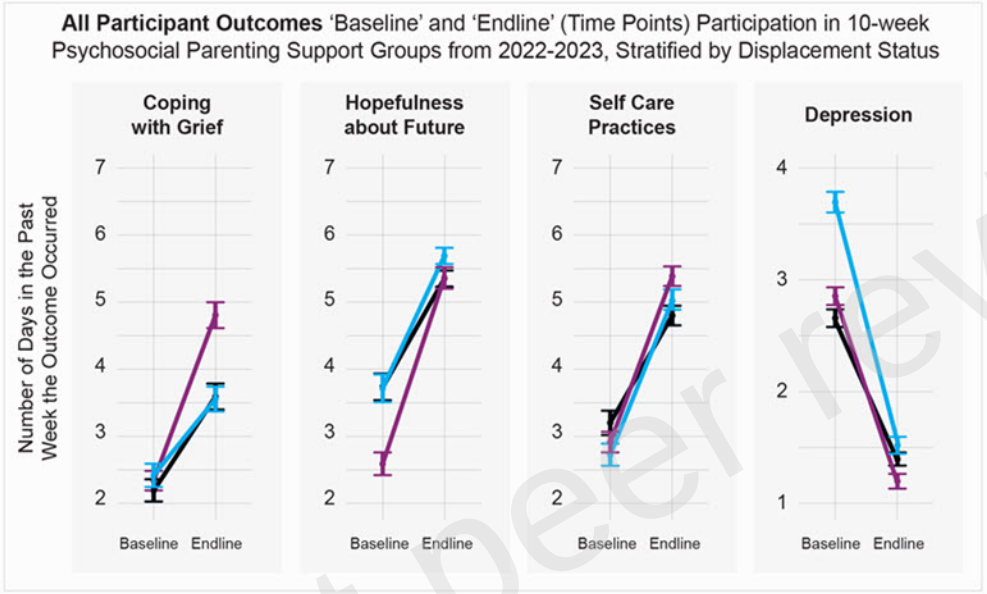


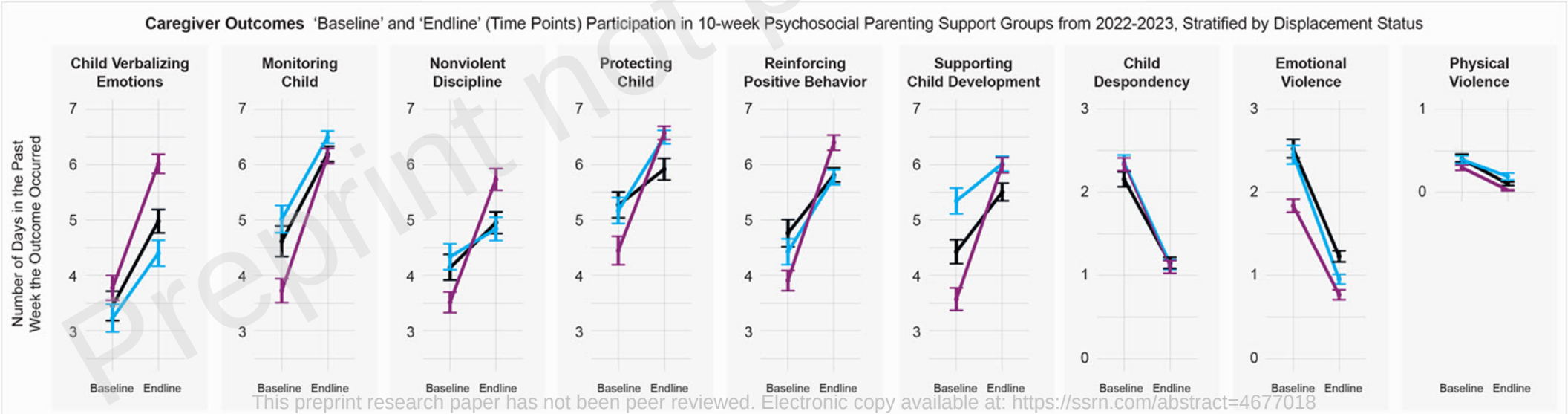


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Figure 2. Ukrainian Hope Group Baseline-Endline Results Stratified by Displacement Status





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Supplementary Material: **The Effectiveness of *Hope Groups*, a Mental Health, Parenting Support, and Violence Prevention Program for Families Affected by the War in Ukraine: Findings from a Pre-Post Study**

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Supplementary Table S1: Hope Group Study Sessions and Content Descriptions

Session	Title	Content
1	**Finding Stability - Our Everyday Tools**	This session builds skills on strategies for building hope in transition and crisis; we create discussion around the impacts of trauma and equip participants to begin building a personal "toolbox" for responding to crisis.
2	**Finding Stability - Our Anchoring Tools**	In this session, we teach common physical, emotional, behavioral, and cognitive reactions to trauma, and we build participant skills in developing stabilization techniques (such as deep breathing and progressive muscle relaxation) for coping with stress.
3	**Talk About It**	This session builds skills in identifying and sharing emotions participants are experiencing related to war-time events. We build skills in how to talk with children about war and loss.
4	**Strong Families**	This session builds skills on developing and maintaining strong relationships within families, particularly caregiver/child relationships. Skills are built for positive communication within relationships.
5	**Staying Safe Together**	This session builds skills and tools to be utilized to stay safe during crises and war, including together physically together as a family, when possible, as well as awareness of the risks and signs of human trafficking. We provide a guide for caregivers to learn how to talk with their children about human trafficking in age-appropriate terms, and we equip caregivers to safeguard their children's childhood even amidst crisis.
6	**Staying Safe at Home**	This session builds skills to respond to strong emotions (such as anger) in healthy, safe ways – even in stressful moments. We discuss positive discipline of children.
7	**Coping with Loss**	This session teaches participants about the stages of grief, with an aim to normalize and remove stigma from the concept of grief. Participants build skills for healthy grieving, finding meaning in their new reality, and helping their children honor whom/what they lost.
8	**Building Hope through Understanding Guilt and Secondary Trauma**	This session equips participants to understand 'survivor guilt' and 'secondary trauma'. Facilitators validate the stress of helping others in crisis and help participants build resilience amidst crises.
9	**Learning Together**	This session builds skills for caregivers to support their children's learning, amidst the war crisis, when many children have left their former schools and are attend new schools (even in a foreign language), or are studying at home/online without a traditional education environment.

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10	**Resilience**	This final session builds skills in exploring emotions and discerning how to continually care for their own mental health, as well as their children's, as they build hope for the future amidst the war crisis.

Supplementary Table S2. Survey Measures

Outcome	Specific Question	Adapted from
Depression	*How many days in the past week did you feel depressed, or like everything was an effort? [0-7]*	Concepts in Patient Health Questionnaire for Anxiety and Depression)
Self Care Practices	*How many days in the past week did you take actions to care for yourself, such as relaxation techniqures, talking to someone you trust about your feelings, establishing a routine, or eating and sleeping well? [0-7]*	Created for Ukrainian context
Hopefulness about Future	*How many days in the past week did you feel hopeful about the future? [0-7]*	Created for Ukrainian context
Coping with Grief	*How many days in the past week were you able to grieve your losses in a healthy way, such as by talking with someone you trust, finding ways to honor who or what you lost, or finding meaning in your new reality? [0-7]*	Created for Ukrainian context
Physical Violence	*How many days in the past week did you discipline your child physically, such as hitting with your hand, stick, or belt? [0-7]*	International Society for the Prevention of Child Abuse and Neglect Screening Tool
Emotional Violence	*How many days in the past week did you shout or scream at your child? [0-7]*	International Society for the Prevention of Child Abuse and Neglect Screening Tool
Child Despondency	*How many days in the past week did your child seem unhappy, downhearted, or tearful? [0-7]*	Created for Ukrainian context
Child Verbalizing Emotions	*How many days in the past week was your child able to talk about their problems and share their worries? [0-7]*	Parent Child Communications Scale
Monitoring Child	*How many days in the past week did you know who your child spent time with, both online and in person? [0-7]*	Parent Protective Practices Scale
Reinforcing Positive Behavior	*How many days in the past week did you praise something your child did well? [0-7]*	Alabama Parenting Questionnaire
Supporting Child Development	*How many days in the past week did you play with your child(ren), or help them learn something new? [0-7]*	Alabama Parenting Questionnaire
Protecting Child	*How many days in the past week did you do something to keep your child safe, such as make sure they don't spend time outside alone after dark, or take a ride/lift with someone alone? [0-7]*	Parent Protective Practices Scale

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Nonviolent Discipline	*How many days in the past week did you try to speak calmly with your child when you were upset with them? [0-7]*	Parenting Young Children

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Supplementary Table S3: Adjusted Linear Regression Models* Comparing Mean Difference in Days

	Midline Estimate (95% CI)		Midline P-Value	Endline Estimate (95% CI)		Endline P-Value
Mental Health Outcomes among Full Sample (N=577)						
Depression	-1.24	(-1.41,-1.06)	< .001***	-1.87	(-2.06,-1.67)	< .001***
Self Care Practices	1.22	(1.05,1.4)	< .001***	2.15	(1.93, 2.38)	< .001***
Coping with Grief	0.92	(0.72,1.14)	< .001***	1.48	(1.28, 1.73)	< .001***
Hopefulness about Future	1.13	(0.95,1.31)	< .001***	2.09	(1.91,2.29)	< .001***
Parenting and Child Health Outcomes among Co-residing Parents and Caregivers (N=381)						
Physical Violence	-0.13	(-0.24,-0.01)	0.01**	-0.25	(-0.35,-0.13)	< .001***
Emotional Violence	-0.76	(-0.94,-0.58)	< .001***	-1.29	(-1.49,-1.11)	< .001***
Supporting Child Development	0.61	(0.41,0.83)	< .001***	1.69	(1.49,1.90)	< .001***
Monitoring Child	0.78	(0.61,1.04)	< .001***	1.68	(1.49,1.97)	< .001***
Protecting Child	0.6	(0.38,0.84)	< .001***	1.4	(1.19,1.66)	< .001***
Nonviolent Discipline	0.52	(0.31,0.79)	< .001***	1.07	(0.83,1.38)	< .001***
Reinforcing Positive Behavior	0.61	(0.47,0.86)	< .001***	1.55	(1.38,1.81)	< .001***
Child Verbalizing Emotions	0.92	(0.70,1.16)	< .001***	1.58	(1.32,1.86)	< .001***
Child Despondency	-0.77	(-0.94,-0.59)	< .001***	-1.2	(-1.40,-.99)	< .001***

* Each model adjusted for age and sex.
Percentile bootstrapping was used for all confidence intervals, as bias-corrected and accelerated bootstrapping performed poorly.

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Supplementary Table S4. Assessing Effect Measure Modification in Hope Group Participant Outcome Improvements by Training of Facilitator (Lay-Trained or Mental Health Professional)

	Intervention Effect among Lay-Trained Facilitators					Additional Intervention Effect among Mental Health Professional Facilitators				
	Midline Estimate (95% CI)	Midline P-vae	Endline Estimate (95% CI)		Endline P-value	Midline Interaction Estimate (95% CI)		Midline Interaction P-value	Endline Interaction Estimate (95% CI)		Endline Interaction P-value
Mental Health Outcomes among Full Sample (N=577)											
Depression	-1.19 (-1.51,-0.89)	.<.001**	-1.48	(-1.79, -1.18)	.<.001**	-0.13	(-0.50, .23)	0.48	-0.58	(-0.95, -0.22)	0.002**
Self Care Practices	1.06 (0.74, 1.38)	<.001***	1.38	(1.06, 1.71)	.<.001**	0.33	(-.06, 0.71)	0.09	1.08	(0.70, 1.47)	<.001***
Coping with Grief	0.76 (0.38, 1.14)	<.001***	0.92	(0.53, 1.31)	.<.001**	0.25	(-0.21,0.71)	0.29	0.78	(0.32, 1.25)	<.001***
Hopefulness about Future	0.87 (0.56, 1.18)	<.001***	1.53	(1.21, 1.85)	.<.001**	0.45	(0.07 - 0.82)	0.02*	0.83	(0.45, 1.24)	<.001***
Parenting and Child Health Outcomes Outcomes among Co-residing Parents and Caregivers (N=381)											
Physical Violence	-0.05 (-0.24, 0.13)	0.58	-0.33	(-0.51, -0.14)	.<.001**	-0.12	(-0.35, 0.10)	0.28	0.09	(-0.14, 0.31)	0.45
Emotional Violence	-0.56 (-0.86, -0.26)	<.001***	-1.01	(-1.31, -0.71)	.<.001**	-0.56	(-0.86, -0.26)	0.10*	-0.43	(-0.79, -0.07)	0.02*
Supporting Child Development	0.34 (-0.0, 0.69)	0.05*	1.17	(0.83, 1.52)	.<.001**	0.41	(0.05, 0.11)	0.05*	0.72	(0.30,1.13)	<.001***
Monitoring Child	0.46 (0.09,0.83)	0.02*	1.29	(0.92, 1.65)	.<.001**	0.48	(0.04, 0.92)	0.03*	0.52	(0.07, 0.96)	0.02*
Protecting Child	0.59 (0.21, 0.96)	0.002**	0.95	(0.57, 1.33)	.<.001**	0.12	(-0.33, 0.57)	0.59	0.68	(0.22, 1.13)	0.004**
Nonviolent Discipline	0.53 (0.1,0.96)	0.02*	0.64	(0.21, 1.07)	.<.001**	0.07	(-0.45, 0.59)	0.78	0.66	(0.14, 1.19)	0.01*
Reinforcing Positive Behavior	0.45 (0.11, 0.79)	<.001**	1.03	(0.69, 1.37)	.<.001**	0.32	(-0.09, 0.72)	0.13	0.78	(0.38, 1.19)	<.001***
Child Verbalizing Emotions	1.03 (0.59, 1.46)	.<.001**	1.21	(0.77, 1.65)	.<.001**	0.09	(-0.62, 0.44)	0.73	0.51	(-0.02, 1.04)	0.06

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Child Despondency	-0.54 (-0.86, -0.23)	.<.001**	-1.01	(-1.32, -0.69)	.<.001**	-0.38	(-0.76, 0.0)	0.05*	-0.37	(-0.75, 0.01)	0.06

*Indicates level of significance.
Models were not adjusted for covariates, in order to yield both the estimated change in outcomes within the referent group (lay-trained) and the additional change within the groups led by professionally trained facilitators.

Supplementary Table S5. Poisson Regression Models Indicating Incidence Rate Ratios (IRR) at Midline and Endline of Participation in Hope Groups

	Midline IRR (95% CI)		Midline P-Value	Endline IRR (95% CI)		Endline P-Value
Mental Health Outcomes among Full Sample **(N=577)**						
Depression	0.62	(0.57,0.66)	<.001***	0.43	(0.4,0.47)	<.001***
Self Care Practices	1.42	(1.34,1.51)	<.001***	1.72	(1.63,1.82)	<.001***
Coping with Grief	1.39	(1.3,1.48)	<.001***	1.62	(1.52,1.72)	<.001***
Hopefulness about Future	1.35	(1.28,1.42)	<.001***	1.61	(1.53,1.70)	<.001***
Parenting and Child Health Outcomes Outcomes among Co-residing Parents and Caregivers **(N=381)**						
Physical Violence	0.67	(0.52,0.86)	.002**	0.32	(0.23,0.45)	<.001***
Emotional Violence	0.66	(0.6,0.73)	<.001***	0.42	(0.37,0.47)	<.001***
Playful Parenting	1.14	(1.07,1.21)	<.001***	1.39	(1.31,1.48)	<.001***
Monitoring Child	1.16	(1.09,1.23)	<.001***	1.33	(1.26,1.41)	<.001***
Protecting Child	1.11	(1.05,1.18)	<.001***	1.26	(1.19,1.33)	<.001***
Nonviolent Discipline	1.12	(1.05,1.2)	<.001***	1.25	(1.18,1.33)	<.001***
Reinforcing Positive Behavior	1.13	(1.06,1.2)	<.001***	1.33	(1.25,1.4)	<.001***
Child Verbalizing Emotions	1.27	(1.18,1.35)	<.001***	1.43	(1.34,1.53)	<.001***
Child Despondency	0.67	(0.6,0.74)	<.001***	0.48	(0.43,0.53)	<.001***

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*Indicates level of significance.
Models were not adjusted for covariates, as models with covariates would not converge. Adjusted models shown in Table S3 demonstrate results remain consistent after adjustment.

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Supplementary Table S6. Assessment of Time Trends: Comparing Baseline Measures During First Half and Second Half of 'Hope Group' Rolling Study Enrollment

	Baseline Measures from November 2022 - March 2023 (N=340)	Baseline Measures from March 2023 - July 2023 (N=362)	P-value
Depression			
Mean (SD)	3.31 (2.12)	3.22 (2.18)	0.59
Median [Min, Max]	3.00 [0, 7.00]	3.00 [0, 7.00]	
Physical Violence			
Mean (SD)	0.362 (0.946)	0.407 (1.09)	0.63
Median [Min, Max]	0 [0, 7.00]	0 [0, 7.00]	
Emotional Violence			
Mean (SD)	2.29 (1.99)	2.19 (1.90)	0.62
Median [Min, Max]	2.00 [0, 7.00]	2.00 [0, 7.00]	
Child Despondency			
Mean (SD)	2.34 (1.82)	2.30 (1.81)	0.81
Median [Min, Max]	2.00 [0, 7.00]	2.00 [0, 7.00]	
Self Care Practices			
Mean (SD)	3.06 (2.15)	2.83 (1.99)	0.14
Median [Min, Max]	3.00 [0, 7.00]	3.00 [0, 7.00]	
Coping with Grief			
Mean (SD)	2.29 (1.99)	2.48 (2.16)	0.22
Median [Min, Max]	2.00 [0, 7.00]	2.00 [0, 7.00]	
Hopefulness about Future			
Mean (SD)	3.26 (2.39)	3.58 (2.47)	0.08
Median [Min, Max]	3.00 [0, 7.00]	3.00 [0, 7.00]	
Supporting Child Development			
Mean (SD)	3.96 (2.25)	4.36 (2.25)	0.06
Median [Min, Max]	4.00 [0, 7.00]	4.00 [0, 7.00]	
Monitoring Child			
Mean (SD)	4.59 (2.48)	4.78 (2.35)	0.4
Median [Min, Max]	5.00 [0, 7.00]	5.00 [0, 7.00]	
Protecting Child			
Mean (SD)	4.91 (2.51)	5.08 (2.32)	0.43
Median [Min, Max]	7.00 [0, 7.00]	7.00 [0, 7.00]	
Nonviolent Discipline			
Mean (SD)	4.01 (2.13)	4.23 (2.27)	0.28
Median [Min, Max]	4.00 [0, 7.00]	4.00 [0, 7.00]	
Reinforcing Positive Behavior			
Mean (SD)	4.48 (2.06)	4.51 (2.24)	0.86
Median [Min, Max]	4.00 [0, 7.00]	5.00 [0, 7.00]	
Child Verbalizing Emotions			
Mean (SD)	3.56 (2.35)	3.48 (2.50)	0.7
Median [Min, Max]	3.00 [0, 7.00]	3.00 [0, 7.00]	

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