

The effects of cash transfers, subsidized childcare, and life skills training on adolescent mothers' participation in school or vocational training in Malawi: evidence from the PROMOTE project pilot randomized controlled trial

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Abstract

Background

Adolescent mothers face multiple barriers to returning to school or pursuing vocational training, including limited childcare support, economic hardship, and a lack of life skills. This study assessed the effectiveness of layered interventions—life skills training, subsidized childcare, and conditional cash transfers—in improving educational and vocational outcomes among adolescent mothers in Malawi.

Methods

We conducted a three-arm, parallel-group, individually randomized controlled trial (RCT) involving 288 adolescent mothers aged 15–19 years in Blantyre, Malawi. Participants were randomized to: Arm 1 (life skills training only), Arm 2 (life skills + subsidized childcare), and Arm 3 (life skills + subsidized childcare + conditional cash transfers). The primary outcome was self-reported participation in school or vocational training during the 12-month intervention period, which was assessed at endline. Analyses were conducted using an intention-to-treat (ITT) framework, employing logistic regression models adjusted for baseline schooling status and stratification variables. Missing outcome data due to attrition were explored through sensitivity analyses.

Results

At endline, outcome data were available for 178 participants (62% follow-up rate). Attrition was balanced across arms, and sensitivity analyses supported the robustness of findings. Participation in school or vocational training was 3.0% in Arm 1, 0.7% in Arm 2, and 12.0% in Arm 3. Compared to Arm 1, participants in Arm 2 had lower odds of being enrolled in school or vocational training (odds ratio [OR] = 0.2, 95% confidence interval [CI]: 0.03–0.83). Arm 3 participants had higher odds of participating in school or vocational training than those in Arm 1 (OR = 6.5, 95% CI: 2.54–16.89, $p < 0.001$).

Conclusions

Layered interventions that combine life skills training with childcare support and cash transfers can significantly enhance adolescent mothers' engagement in education or training. These findings underscore the importance of integrated social protection and empowerment strategies in addressing interlinked barriers facing young mothers.

Trial Registration:

The trial was registered in the American Economic Association's registry for Randomized Trials (AEARCT-0009115) on May 15, 2022, and updated on 14th of February 2023.

Plain English summary

Adolescent girls who become mothers often face many challenges that make it hard for them to participate in school or vocational training. These challenges include the lack of childcare, financial difficulties, and not having enough support or confidence to plan for their future. The PROMOTE project was designed to test whether life skills training, childcare support and a cash subsidy dependent on schooling or training can help young mothers participate in school or vocation training.

We worked with 288 adolescent mothers aged 10 to 19 years in Blantyre, Malawi. The young mothers were randomly divided into three groups. One group received life skills training only. The second group received life skills training plus subsidized childcare. While the third group received both, along with small cash payments that were given on the condition that they enrolled in school or vocational training. We followed up with them a year later to see what had changed.

We found that more girls returned to school or started vocational training when they received all three forms of support. About 9 out of 288 returned to school in the life skills-only group, 2 out of 288 in the group with life skills and childcare, and 35 out of 288 in the group that received all three interventions. This shows that combining life skills, childcare, and cash subsidies works better than life skills alone.

Our findings suggest that programs must include real-life help; like childcare and financial support to remove everyday barriers that young mothers face when they desire to return to school or start vocation training.

Background

Adolescent motherhood is a significant global challenge, with approximately 12 million girls aged 15–19 giving birth each year [1]. These births are usually associated with adverse health and social outcomes [2]; Healthwise, pregnant and parenting adolescents are prone to long-term negative physical and mental health outcomes [2], [3]. Socially, they face stigma, school dropout, an increased risk of rapid repeat pregnancies, multiple forms of violence, and heightened risk of intergenerational poverty [4], [5].

Despite a global decline in adolescent birth rates from 64.5 births per 1,000 adolescent girls aged 15–19 years in 2000 to 41.3 births per 1,000 adolescent girls in 2023, substantial regional disparities persist, with rates remaining particularly high in sub-Saharan Africa (97.9%) and Latin America/Caribbean (51.4%) [6]. Adolescent births are disproportionately concentrated among disadvantaged populations, including rural communities and those with lower socioeconomic status and educational attainment [6].

Socioeconomic and educational consequences of adolescent motherhood

Early motherhood disrupts educational trajectories [7], [8], with adolescent mothers experiencing school dropout rates up to 10% higher than non-parenting adolescents [9], [10]. School reentry and the persistence of adolescent mothers are impeded by multiple barriers, including stigmatization and discrimination within educational settings, role conflicts between motherhood and student responsibilities, inadequate family support systems, financial constraints, and limited access to affordable childcare [11], [12]. Interrupted schooling impacts on their social mobility and results in long-term economic exclusion, thereby reinforcing cycles of poverty and gender inequality [13], [14], [15]. The complexity of these challenges requires multifaceted interventions to effectively support adolescent mothers in continuing their education.

Existing Interventions

Several interventions have shown promise in addressing specific barriers faced by adolescent mothers. Cash transfer programs, both conditional and unconditional, have demonstrated effectiveness in increasing school participation and reducing dropout rates, particularly during economic hardships [16], [17] as well as a positive net effect on health outcomes. A study conducted in Morocco in 2024 showed that directing transfers to mothers rather than fathers yields better educational outcomes, with sufficient transfer value being a crucial design consideration [18]. Similarly in the Zambian RISE trial, Sampa and colleagues in 2018 demonstrated that parenting adolescent girls who received consistent cash were eight times more likely to remain in school [19]. Likewise In Burkina Faso, a randomized experiment by Akresh and colleagues showed increased school enrolment overall, with stronger effects among marginalized groups such as girls, younger children, and lower ability children who received conditional or unconditional cash transfers [20]. In Malawi, a cluster randomized trial which tested the effects of conditional cash transfers to never-married girls, found a sharp decline in HIV prevalence and HSV-2 after 18 months [21]. While the study did not isolate mothers, the overall health gains suggest that income-support and school attendance cumulatively reduce risky behaviors that lead to infection in that demographic.

Subsidized childcare addresses one of the primary obstacles to school reentry for adolescent mothers, it promotes maternal educational attainment by alleviating caregiving responsibilities that would otherwise preclude school attendance [9]. Programs featuring on-site childcare facilities with comprehensive support services have shown a strong correlation to facilitating educational completion for adolescent parents [12].

Life skills training programs represent a third intervention approach, focusing on developing capabilities in parenting, goal setting, problem-solving, coping strategies (psychosocial support), and financial literacy. Such interventions have been found to positively impact on maternal self-esteem, reduce repeat pregnancies, and improve academic achievement and self-sufficiency [22]. A Kenyan study on school

reentry policy highlighted that psychosocial support, including counseling, peer support and mentorship were effective in increasing school re-enrollment [23]. The author posited greater effects may be possible when lifeskills are combined with conditional cash transfers.

In recent years, there has been growing interest in multi-component interventions that aim to support adolescent mothers' re-engagement with education and skills development [24]. Evidence from conditional cash transfer (CCT) programs, subsidized childcare interventions, and life skills training suggests that these approaches may mitigate some of the structural barriers young mothers face [18].

Research gap and rationale for the PROMOTE project

Adolescent mothers face multiple, interconnected barriers to schooling or engagement in a vocation [17]. Single intervention approaches often fail to address the complex challenges these young mothers' encounter. There is an evidence gap regarding integrated intervention packages that simultaneously address financial constraints, childcare responsibilities, and personal development needs through a comprehensive approach [25].

The "Action to empower adolescent mothers in Burkina Faso and Malawi to improve their sexual and reproductive health" or PROMOTE project was conceptualized to address this research gap by implementing and rigorously evaluating a three-component intervention package through a pilot randomized controlled trial (RCT) [26]. Following CONSORT 2025 guidelines for trial reporting [27] and the Template for Intervention Description and Replication (TIDieR) framework for intervention description [28], this study examines whether combining cash transfers, subsidized childcare, and life skills training creates synergistic effects on adolescent mothers' educational participation than a lone intervention.

Study objectives and hypotheses

The primary objective of the PROMOTE project was to evaluate the effectiveness of a three-component intervention package (cash transfers, subsidized childcare, and life skills training) in increasing the participation of adolescent mothers in formal education or vocational training. Secondary objectives (not addressed in this manuscript) include assessing the effects of different combinations of the interventions on sexual and reproductive health and mental health outcomes among adolescent mothers (secondary outcomes); and assessing the cost-effectiveness of these interventions in increasing adolescent mothers' re-entry into school or vocational training. We hypothesized that combining conditional cash transfer, subsidized childcare and adolescent mothers' club interventions is more effective in increasing re-entry into school and vocational training than adolescent mothers' clubs only or combined adolescent mothers' clubs and subsidized childcare interventions.

This paper examines the effects of the PROMOTE interventions on adolescent mothers' participation in schooling or vocational training during the intervention period. The findings provide critical insights for

policymakers, educators, and public health practitioners seeking to promote gender equity and social inclusion of young mothers.

Methods

Study design and setting

The PROMOTE project was a three-arm, parallel-group, individually randomized RCT conducted between 2022–2024 in Urban and peri-urban areas of Blantyre in Malawi, and Ouagadougou in Burkina Faso. We report the results from the Malawi study following the CONSORT guidelines for the reporting of randomized trials.

Participants and recruitment

Eligible participants were adolescent girls aged 10 to 19 years who had a biological child aged 1 to 3 years. They also had to be residents in the study site for at least 1 year at baseline. Participants were recruited using a two-stage probability sampling strategy. Eight wards in high density urban areas were selected in this study. In each ward, three enumeration areas (EAs) formed one cluster and served as the primary sampling unit. The lists of EAs were obtained from the Malawi national statistical office. We also conducted a comprehensive household listing exercise in those EAs. This identified parenting adolescent girls who were residents. We then compiled a sampling frame of all households with adolescent mothers. Eligible participants from these households were included in the study.

Randomization and blinding

We randomized participants into a 1:1:1 allocation ratio across the three intervention arms using a computer-generated random number sequence stratified by community unit. Randomization was conducted by an independent statistician not involved in recruitment or data collection. Due to the nature of the interventions, participants and program implementers could not be blinded to treatment assignment; however, outcome assessors were blinded during endline data collection.

Interventions and comparisons

Participants were assigned to one of the following three study arms:

- **Arm 1: Life skills training**
- Participants received fortnightly group-based training sessions for 12 months, covering topics in sexual and reproductive health, mental health, gender-based violence, childcare and financial literacy, among other topics. These sessions were facilitated by trained community health workers in community spaces.
- **Arm 2: Life skills training plus subsidized childcare**

- In addition to life skills training, participants in this group received vouchers for subsidized childcare in selected childcare centers. Subsidized childcare lasted for the duration of the interventions (12-months). Childcare centers were community-based and staffed with trained caregivers.
- **Arm 3: Life skills training plus subsidized childcare plus conditional cash transfers**
- Participants in this group received the full package in Arm 2, plus quarterly conditional cash transfers of approximately 30 United States dollars transferred through mobile money platforms. The cash transfer was contingent upon verified school enrollment, or vocational program enrollment.

Details of the intervention are provided in the published protocol [26] .

Data collection and outcome measurement

Baseline data were collected prior to randomization and included demographic information, educational history, household characteristics, and psychosocial indicators. Endline data were collected after the conclusion of the intervention period.

The primary outcome was self-reported enrollment in formal schooling or vocational training during the 12-month intervention period and was assessed at endline. Schooling or vocational training participation was verified, where possible, through school or training program documentation and impromptu visits.

Statistical analysis

We first described the basic social profile of the study participants using their age, religion and living situation. Each variable was appropriately categorized, and a Pearson's chi-square statistic was used to observe the difference between each experimental arm. The primary analysis followed the intention-to-treat (ITT) principle, including all participants as randomized at baseline, regardless of intervention uptake at endline. Binary logistic regression was used to estimate the effect of each intervention arm on the primary outcome, controlling for stratification variables and other baseline adjustment covariates, including age, family structure, family support, marital status, living arrangements, employment status, and neighborhood safety nets. These adjustment variables were designed to account for possible residual confounding even after randomization and to improve the accuracy of the predicted treatment effects. Sensitivity analyses included models adjusted for attrition using inverse probability weighting (IPW). The purpose of this sensitivity analysis was to evaluate how robust the findings were to various hypotheses regarding missing data. All the analyses were performed using Stata version 18, and statistical significance was set at $p < 0.05$.

Ethical consideration

This study received approval from the African Population and Health Research Center's Ethics Review Committee and the University of Malawi Research Ethics Committee (P. 08/33/176). Each participant provided informed consent. Minors gave assent with parental or guardian consent. Girls who could not

provide consent or had severe cognitive impairment or any condition that prevented participation, were excluded.

Results

Participant Flow and Retention

A total of 288 adolescent mothers were enrolled and randomized into three intervention arms: Arm 1 (Life skills training), Arm 2 (Life skills training plus subsidized childcare), and Arm 3 (Life skills training plus childcare plus conditional cash transfers). Of these, 178 participants (61.8%) were successfully followed up at endline. Attrition rates were similar across arms (Arm 1: 37.5%, Arm 2: 39.6%, Arm 3: 38.5%) and did not differ significantly by intervention arm ($p = 0.84$).

2. Baseline characteristics

Baseline characteristics were balanced across treatment arms (Table 1). The mean age of participants was 17.2 years (SD = 1.1), and 45% had received some secondary-level education prior to childbirth. About 89% of participants were not in school or training at the baseline. There were no significant differences across arms in terms of age, education, or household support.

Table 1
Baseline characteristics

Characteristics	Total N(%)	Arm 1 n(%)	Arm 2 n(%)	Arm 3 n(%)	P- value
	288 (100.0)	94 (32.6)	90 (31.2)	104 (36.1)	
Age					
10–17	50 (17.4)	18 (19.1)	13 (14.4)	19 (18.3)	0.669
18–19	238 (82.6)	76 (80.9)	77 (85.6)	85 (81.7)	
Religion					
Christianity	215 (74.7)	74 (78.7)	62 (68.9)	79 (76.0)	0.639
Islam	39 (13.5)	11 (11.7)	15 (16.7)	13 (12.5)	
Other	34 (11.8)	9 (9.6)	13 (14.4)	12 (11.5)	
Marital status					
Married (or living with partner as married)	88 (30.6)	32 (34.0)	32 (35.6)	24 (23.1)	0.084
Separated/divorced	50 (17.4)	19 (20.2)	9 (10.0)	22 (21.2)	
Not living with partner/Single/other	150 (52.1)	43 (45.7)	49 (54.4)	58 (55.8)	
Living situation					
Lives with neither parent	135 (46.9)	40 (42.6)	49 (54.4)	46 (44.2)	0.402
Lives with one parent	90 (31.2)	29 (30.9)	25 (27.8)	36 (34.6)	
Lives with both parents	63 (21.9)	25 (26.6)	16 (17.8)	22 (21.2)	
Highest level of education					
Primary	156 (54.4)	51 (54.3)	45 (50.0)	60 (58.3)	0.557
Secondary	131 (45.6)	43 (45.7)	45 (50.0)	43 (41.7)	

Characteristics	Total N(%)	Arm 1 n(%)	Arm 2 n(%)	Arm 3 n(%)	P- value
	288 (100.0)	94 (32.6)	90 (31.2)	104 (36.1)	
Never attended school				1(0.01)	
Currently in school	32 (11.1)	13 (13.8)	8 (8.9)	11 (10.7)	0.293
Desire to return to school	150 (58.8)	48 (59.3)	43 (52.4)	59 (64.1)	
Desire to learn a trade	279 (97.2)	91 (96.8)	88 (97.8)	100 (97.1)	0.919

3. Primary outcome: return to school or vocational training ITT regression results

During the 12-month intervention, the proportion of participants who reported school or vocation training enrollment was -- Arm 1 (life skills only): 3%; Arm 2 (life skills + childcare): 0.7%; Arm 3 (life skills + childcare + CCT): 12%

Using Arm 1 as the reference category, **Arm 2** showed lower odds of returning to school or training compared with Arm 1. In the unadjusted model, the odds ratio (OR) was 0.20 (95% CI: 0.04–1.09). The adjusted model yielded a similar estimate. However, the confidence intervals crossed 1, indicating that the difference was not statistically significant in the conventional ITT models. **Arm 3** demonstrated substantially higher odds of returning to school or training compared with Arm 1. The unadjusted OR was 4.8 (95% CI: 2.15–10.70), and the adjusted OR was 4.8 (95% CI: 2.14–11.28). These effects were statistically significant ($p < 0.001$), indicating that participants in Arm 3 were nearly five times more likely to return to school or training than those in Arm 1.

Table 2 Adjusted effect sizes inversely weighted

Intervention arms	N(endline) = 178	Returned to School/Training (%)	ITT regression OR (95% CI)		ITT regression (Inverse probability weights) OR (95% CI)	
			Unadjusted	Adjusted	Unadjusted	Adjusted
Arm 1	56	9 (3.12)	1	1	1	1
Arm 2	54	2 (0.69)	0.2 (0.04-1.09)	0.2 (0.5-1.1)	0.1 (0.02 – 0.63)	0.2 (0.03 – 0.83)
Arm 3	68	35 (12.15)	4.8 (2.15 – 10.70)***	4.8 (2.14 – 11.28)***	7.0 (2.88 – 16.81)***	6.5 (2.54 – 16.89)***

CI: confidence interval; ITT: intention-to-treat; OR: odds ratio

Logistic regression adjusted for baseline characteristics. All analyses follow the intention-to-treat principle

4. Sensitivity analyses

The IPW models yielded similar results but with larger effect estimates for Arm 3, suggesting that attrition substantially biased the results. Sensitivity analysis using worst-case bounds confirmed the direction and magnitude of effects. As shown in Table 3. **Arm 2** showed significantly lower odds of returning to school or training compared with Arm 1 in both unadjusted (OR = 0.10; 95% CI: 0.02–0.63) and adjusted models (OR = 0.20; 95% CI: 0.03–0.83). Whilst **Arm 3** showed a strong and statistically significant effect. The weighted unadjusted OR was 7.0 (95% CI: 2.88–16.81), and the weighted adjusted OR was 6.5 (95% CI: 2.54–16.89), indicating that participants in Arm 3 had between six and seven times the odds of returning to school or training compared with the reference arm. The IPW models, which attempt to correct for this bias, produced even larger effect estimates for Arm 3.

Table 3
Sensitivity analyses (worst-case) bounds

Intervention arm	Assigned (N)	Endline (n)	Outcome rate	Risk difference vs Arm 1
Arm 1	94	56	9(3.12)	Ref
Arm 2	90	54	2(0.69)	-2.43pp
Arm 3	104	68	35(12.15)	+ 9.03pp

The findings indicate a clear and robust positive effect of the Arm 3 intervention on school or training enrollment during the intervention period. This effect remained large and statistically significant across unadjusted, adjusted, and inverse probability weighted models. In contrast, Arm 2 did not demonstrate evidence of a beneficial effect and, in weighted analyses, was associated with significantly lower odds of returning to school or training compared with the reference group.

Discussion

The PROMOTE RCT enrolled adolescent mothers in Malawi to test the effectiveness of three interventions on enrollment in school or vocational training. The main finding is that only the comprehensive intervention (Arm 3), which included all three components (life skills training provided through adolescent mothers clubs, subsidized child care, and cash transfers conditioned on enrolment in school or vocation training), had a statistically significant and substantial net positive effect on adolescent mothers re-enrollment in school or vocational training when compared to receiving life skills training alone. In contrast, interventions providing life skills with subsidized childcare (Arm 2) had minimal impact. These findings suggest that while foundational support is necessary, it is the alleviation of financial barriers through CCTs that serves as the critical catalyst for enabling adolescent mothers' educational participation.

Life skills training, which served as the study's theoretical control, showed a weak effect on the outcome. This outcome was expected, as life-skills training was anticipated to enhance self-efficacy and decision-making, but alone would not necessarily lead to greater participation in education or vocational training.

The results from Arm 1 confirm what has been suggested in other studies: life skills training, while valuable for psychosocial well-being, knowledge, and empowerment, is insufficient on its own to overcome the structural and economic barriers that prevent adolescent mothers from returning to formal education or training [23]. As a foundational intervention in isolation, its effectiveness is limited when other barriers exist (e.g. lack of childcare, financial constraints or social support). Bohr and Binoon explored this in 2014 and found that there was no significant difference between pre- and post-measures following the implementation of an attachment-based course for teenage parents [29].

To address the childcare barrier, adolescents in the second arm were provided with subsidized childcare to relieve them of childcare burdens and responsibilities that might otherwise hinder their enrollment in school or vocational training. Mukabana et al. (2024) found through interviews with parenting adolescent girls that childcare responsibilities are a major obstacle to returning to school [12]. Our findings suggest that subsidized childcare alone may be insufficient in facilitating schooling particularly in resource-constrained settings.

The strikingly weak effect in this arm (even lower than Arm 1) was unexpected. Although not statistically significant compared to Arm 1, this finding is to be interpreted with careful consideration. It is possible that providing childcare without financial support inadvertently created a new burden. For instance, mothers may have felt increased pressure to seek immediate employment to contribute to household finances once the childcare constraint was partially relieved, rather than investing time in education. This aligns with economic theories of time allocation, where individuals make choices based on the relative returns to different activities [30]. Without a financial incentive that specifically rewards educational investment, childcare alone may simply free up time for income-generating activities perceived as pressing.

We found that the three-component intervention package was the most effective. Participants in Arm 3 were 6.5 times more likely to return to education or training compared to those in the life-skills-only arm. The CCT likely addressed direct costs (e.g., fees, materials) and indirect opportunity costs (e.g., lost income or household labor), which are often considered the key barriers to schooling or vocational training for young mothers from low-income households.

A critical consideration in interpreting our results is the substantial attrition rate of 38.2%. The IPW models, which attempt to correct for this bias, produced even larger effect estimates for Arm 3. This suggests that the participants lost to follow-up might have been systematically different, potentially those facing even greater vulnerabilities, and that the true intervention effect for the most disadvantaged mothers could be even larger than our primary ITT analysis indicates.

The consistency of the findings across sensitivity analyses, including worst-case bounds, strengthens our confidence in the direction and significance of the effect for the comprehensive package. Furthermore, factors unique to the Malawi context played a role in the loss-to-follow-up of many mothers. A major setback during the implementation period was cyclone Freddy, which led to displacement of study participants, in addition to the stark economic realities that followed [31].

The results demonstrate a strong cumulative effect: participants who received all three interventions were significantly more likely to participate in schooling or vocational training than those receiving fewer supports.

Conclusions

This trial provides robust evidence that a comprehensive intervention package, anchored by conditional cash transfers, can significantly increase the likelihood that adolescent mothers will return to school or vocational training. It is the synergistic effect of reducing financial pressure, providing childcare, and building personal capacity that creates a viable pathway for these young women to resume their educations and build more secure futures. Further research is needed to understand how these interventions can be scaled up in low-resource settings.

Study limitations and strengths

This study lacked a true pure control limiting the understanding of the singular effect of life skills training versus a *do-nothing* scenario. In addition, the study was affected by significant attrition. Nonetheless, attrition rates were similar across all three intervention arms and sensitivity analysis suggests that the effects would have been larger.

The overall retention rate suggests that the interventions were feasible to implement. Though, efforts to improve follow-up and retention rates in future studies are needed, the balanced rates of attrition across arms indicate that no specific intervention disproportionately affected the retention of adolescent mothers.

Abbreviations

CCT
Conditional cash transfer
CI
Confidence interval
EA
Enumeration area
IPW
Inverse probability weighting
ITT
Intention-to-treat
OR
Odds ratio
PP
percentage points

RCT
Randomized controlled trial

Declarations

Ethics Approval and Consent to Participate

Consent for Publication

All participants provided consent for the publication of anonymized data. No individual-level identifiers are reported in this manuscript.

Availability of Data and Materials

Competing Interests

The authors declare that they have no competing interests.

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Authors’ Contributions

All authors contributed to the production of this manuscript. WTP, AM and BM were responsible for the project direction and implementation EO, WTP and PCI conducted the analysis and produced the original draft; whilst BM, AIA, RO, AM and CWK provided critical review and oversight.

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Figures

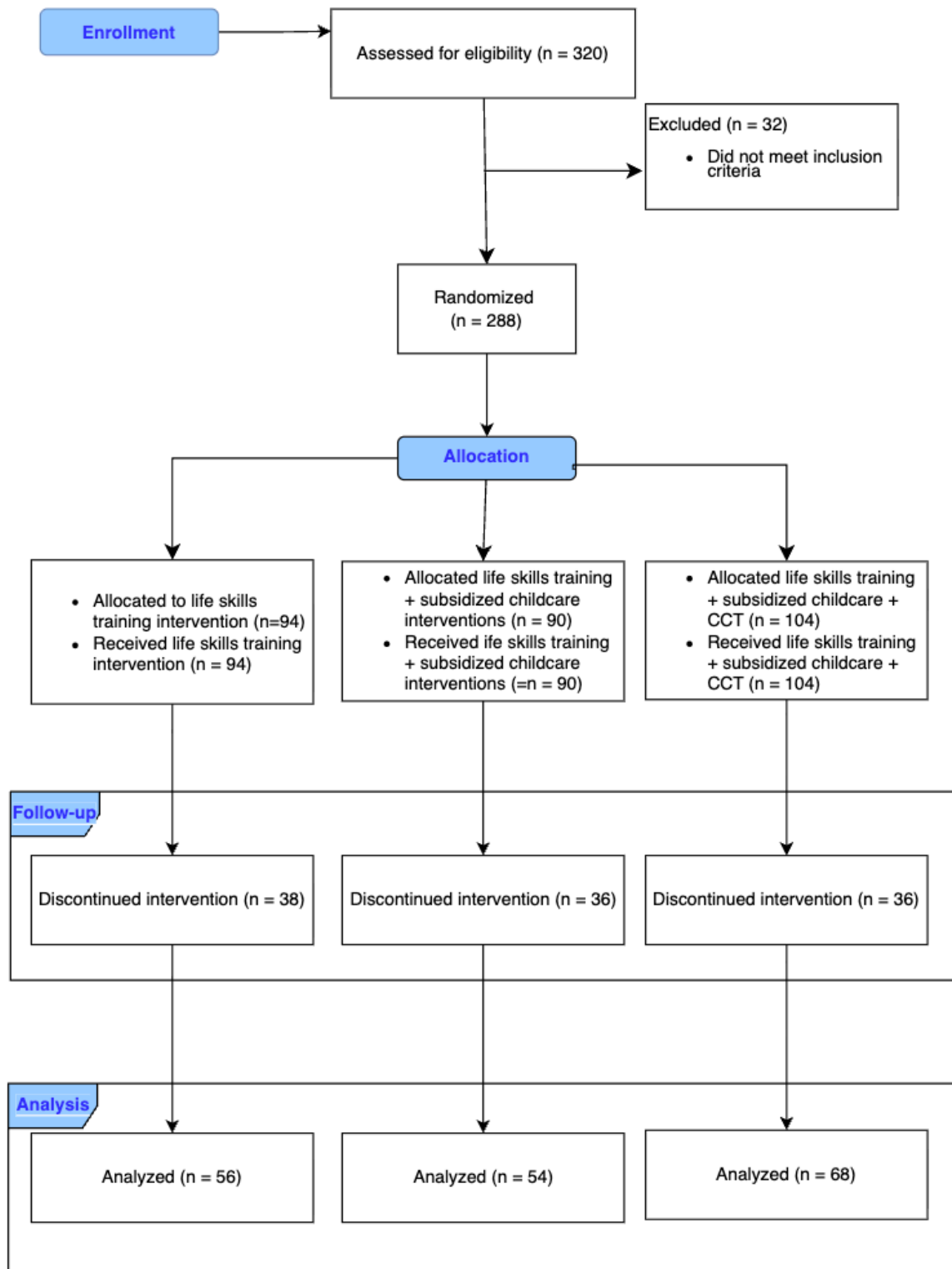


Figure 1

CONSORT Flow Diagram

Supplementary Files

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- [CONSORTchecklist.pdf](#)