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Regular Article

The effects of cash and group therapy in the context of conflict: Evidence from a randomized evaluation in Ethiopia[☆]

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ABSTRACT

The prevalence of depression remains high in low-income contexts, particularly those affected by conflict. This paper reports on a randomized controlled trial conducted in rural Ethiopia assessing the effects of a psychological (group therapy) intervention delivered by non-specialist health staff, as well as a large one-time cash transfer delivered post-therapy. The trial includes three arms comparing group therapy, cash, and both jointly to a status quo control within a sample of individuals reporting some depressive symptoms or functional impairment at baseline. The study occurred between 2022 and 2024, during a period of active armed conflict. Findings show that sixteen months post-baseline, there are no persistent positive effects of group therapy alone; cash alone improves time use and economic outcomes. Group therapy and cash jointly improve psychosocial skills, time use, and economic outcomes, and in areas not affected by conflict, the joint intervention also improves mental health.

1. Introduction

Substantial evidence exists around the bidirectional relationship between poverty and mental health (Ridley et al., 2020): poor mental health may impair cognitive function and decision-making and reduce labor market participation and productivity (Haushofer and Fehr, 2014; Lund et al., 2024), and conversely, poverty may expose individuals to more risk factors such as financial insecurity, food insecurity, crime or environmental hazards, increasing stress and the likelihood of developing mental health disorders (Christian et al., 2019; Ridley et al., 2020). Exposure to armed conflict likely intensifies the bidirectional relationship between mental health disorders and poverty. Direct exposure to violence and displacement may amplify mental illnesses (Bendavid et al., 2021), reducing labor force participation and productivity. At the same time, conflict can lead to loss of assets, reduced productivity, and increased unemployment, intensifying poverty or pushing households toward riskier livelihood strategies (Kondylis, 2010; Vesco et al., 2024). These coping mechanisms often lead to chronic stress, exacerbating depressive and anxiety disorders.

To address the complex dynamics of mental health and poverty, joint interventions targeting both domains may be most effective (Lund et al., 2010). Given the high prevalence of mental health disorders particularly in conflict-affected areas (Charlson et al., 2019) and the limited services available in these settings, psychological interventions that can be delivered at-scale by non-specialists are particularly promising (Singla et al., 2017). Psychological interventions can also be linked to large-scale economic interventions such as cash transfers. Cash transfers currently reach over a billion people globally and evidence indicates that they are an effective solution for alleviating poverty and enhancing economic opportunities (Gentilini et al., 2022; World Bank, 2018).

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☆ All errors and opinions are our own. This study was registered in the AEA RCT registry, AEARCTR-0010201.

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This study uses a cluster randomized control trial (cRCT) to investigate the effects of cash and a psychological (group therapy) intervention, group Problem Management Plus (gPM+), on a range of outcomes related to economic and mental wellbeing among extremely poor individuals experiencing mild to moderate depression or functional impairment in rural Ethiopia. As the intervention was implemented during active armed conflict, we also explore how conflict moderates these effects. The cRCT included 252 villages from 70 sub-districts in the Oromia and Amhara regions of Ethiopia. Sub-districts were first randomized to either receive or not receive a cash transfer; second, villages within the sub-districts were randomized to either receive or not receive gPM+. This resulted in a cross-cutting design with the following four arms: a control arm that received no intervention; a cash arm receiving a one-time lump sum payment of 15,000 Ethiopian birr (approximately $279 USD)[2]; an arm receiving gPM+; and an arm receiving both interventions.

Developed by the World Health Organization for adults affected by adversity, gPM+ is a flexible form of transdiagnostic group therapy addressing common mental health challenges such as depression, stress, and anxiety. It targets these psychological challenges with strategies that include problem-solving, stress management, behavioral activation and strengthening social support (World Health Organization, 2018). Initially conceived as individual counselling composed of 5 sessions, it has been adapted to a community-based group intervention (World Health Organization, 2020). Both group and individual based PM+ have been shown to have beneficial impacts on distress and mental health (Schäfer et al., 2023). While gPM+ does not focus on trauma directly, evidence suggests it can be effective in conflict-affected populations in reducing trauma-related symptoms such as re-experiencing (intrusive memories, flashbacks, etc.), avoidance behaviors, and arousal (hypervigilance, concentration difficulties, anger, and sleep disturbance) (Akhtar et al., 2022).

Both gPM+ and cash are hypothesized to improve mental health. By providing individuals with evidence-based strategies to manage challenges both emotional (e.g., stress, fear, feelings of helplessness) and practical (e.g., livelihood-related obstacles and intrahousehold conflict), gPM+ is expected to enhance mental health (Bryant et al., 2017; Dawson et al., 2015). Given the more flexible and transdiagnostic structure of gPM+ vis-à-vis other psychotherapy interventions that more specifically target certain dimensions of mental health, we hypothesize that these effects will manifest across multiple domains of mental health — a characteristic that is particularly important in this conflict setting where we anticipate high rates of multiple co-occurring mental health disorders (Charlson et al., 2019). We also hypothesize that cash will lead to improved mental health by reducing poverty related stress (Hidrobo et al., 2023). If cash and gPM+ are complements (for example, if gPM+ is more effective when households are given the resources to act on some behavioral strategies), then the combined impact of both interventions may be the most effective in improving mental health.

Both interventions are also hypothesized to improve economic outcomes, gPM+ indirectly through improvements in mental health, and cash directly through increases in assets, savings, credit, and food security and indirectly through improvements in mental health. Enhanced mental health is expected to improve decision-making, beliefs, and preferences leading individuals to engage in more productive use of their time and increase their economic productivity (Lund et al., 2024; Ridley et al., 2020). Enhanced mental health may also lead to increases in parents' level of investment in children (Angelucci and Bennett, 2024; Baranov et al., 2020; Bryant et al., 2022a). These shifts in behavior and improved economic outcomes, should in turn assist in sustaining the positive mental health effects in the longer-term.

[2] The conversion was conducted using the prevailing exchange rate as of February 1, 2023, around the midpoint of the period in which cash was disbursed.

Our analysis focuses on measuring the impact of cash alone ("Cash"), gPM+ alone ("gPM+") and the combined impact of cash and gPM+ ("Cash & gPM+") on a series of prespecified outcome domains related to the theory of change that include mental health, childcare, income-generating time use, psychosocial, and economic outcomes. The mental health domain includes variables measuring depression, anxiety, stress and post-traumatic stress; the childcare domain includes measures of childcare, discipline, and neglect; the time use domain includes variables on hours worked in crop farming, livestock, business, and wage labor; the economic domain includes assets, consumption, food security and savings; and the psychosocial domain, which is intended to capture the pathways through which gPM+ improves mental health, includes measures capturing self-efficacy, social support, coping, substance use, and tension reduction strategies. For a subgroup of individuals composed of women only, we also measure impacts on intimate partner violence (IPV) and preferences (as measured by time and risk preferences).

The trial enrolled 3055 individuals who were initially surveyed between July and August 2022. gPM+ was provided immediately after the baseline survey (August–September 2022), and cash was delivered approximately 6–8 months after the baseline survey (January–March 2023). Two follow-up surveys were administered: the first of these (henceforth called the short-term follow-up) was administered approximately two months after the baseline survey (September–October 2022), immediately following the conclusion of gPM+ but prior to the disbursement of cash transfers, and the second (henceforth called the longer-term follow-up) was administered approximately 14–18 months after the baseline survey (October 2023–January 2024). Our analysis preferentially relies on the longer-term follow-up data since our main focus is on the persistence of impacts and the potential synergy with cash. We also, however, include short-term results for context.

The study's timeline coincided with a period of intense conflict in northern Ethiopia that directly affected study participants in the Amhara region. While the conflict in Tigray (November 2020–November 2022) was initially confined to the region of Tigray, it subsequently spilled over into neighboring regions including Amhara. Additionally, new violence erupted in Amhara in 2023 when the federal government sought to dissolve regional special forces that it had supported in the Tigrayan conflict. As the study occurred during a period of active conflict, we estimate the moderating impact of conflict. On the one hand, impacts of cash and gPM+ may be strongest in areas where health services are limited or where mental health challenges are more prominent. On the other hand, impacts may be weaker if economic opportunities are scarce or if conflict disrupts implementation of interventions, reducing their overall effectiveness (Brune et al., 2022). Moreover, conflict is likely to pose a challenge to the sustainability of any initial positive impacts as individuals face continued trauma, stressors and uncertainty (Acarturk et al., 2024; Bryant et al., 2022a).

Focusing on the longer-term results, we find no positive impacts of gPM+ on any outcome domain, and a negative impact on income-generating time use. By contrast, Cash leads to significant increases of 0.22 standard deviations (SDs) in the economic domain and 0.06 SDs in income-generating time use; and Cash & gPM+ leads to significant increases in the economic (0.23 SDs), time-use (0.8 SDs), and psychosocial (0.06 SDs) domains, but no effects on the mental health and childcare domain. The positive effects on economic outcomes are overwhelmingly driven by increases in the value of assets and the probability of savings (in fact, there are no positive effects on food security or consumption). Moreover, there is no evidence of any added economic value of gPM+, as the effects are parallel in both arms that include cash. The effects on psychosocial outcomes are driven primarily by enhanced social support and tension reduction strategies (both which are part of the gPM+ curriculum), and here, Cash & gPM+ leads to larger impacts compared to Cash alone. For the subsample of women, we also find some suggestive evidence that the combined intervention leads to increased patience but find no impacts on IPV from any arm.

In exploring heterogeneity, we find the experimental effects are almost entirely concentrated in the Oromia region where the study areas were much less affected by armed conflict. We build on this regional analysis to explore heterogeneous effects with respect to household-level exposure to conflict. We use the Armed Conflict Location and Event Data (ACLED) to create an indicator of exposure to conflict, capturing the number of conflict incidents recorded within 25 km of the household's location during the 12 months prior to each survey round. Using this exposure variable, we find meaningful evidence of heterogeneity. In households exposed to zero conflict, Cash & gPM+ leads to enhanced mental health (0.18 SDs), psychosocial well-being (0.07 SDs), income-generating time-use (0.07 SDs), and economic outcomes (0.29 SDs).[3] The positive effects of the joint intervention steadily attenuate with increasing exposure to conflict such that a household characterized by the typical level of conflict exposure in Amhara show smaller or no significant impacts on all outcomes except time use. Overall, these findings suggest that exposure to conflict is a primary reason (though perhaps not the only reason) why the joint intervention did not generally have persistent effects on mental health outcomes in Amhara and thus had weak effects in the pooled sample.

These primary findings also suggest that gPM+ alone may not enhance mental health in the longer-term; one hypothesis is that the initial effects of gPM+ have faded. To test this hypothesis, we turn to the short-term data. We find that in the short-term, gPM+ leads to significant improvements in mental health, childcare, and psychosocial outcomes. However, these effects are observed primarily in the arm randomized to (subsequently) receive cash (the exception is the psychosocial domain where both gPM+ arms lead to significant improvements). This is surprising given that cash had not yet been disbursed at the time of the survey and suggests that there was some unintentional unblinding of treatment status. This renders the interpretation of any short-term effects of gPM+ challenging, and we present those results with this associated caveat.

Our findings contribute to three strands of literature. First, we contribute to the existing evidence around the effects of psychological interventions in LMICs. While this literature generally finds positive effects on mental health, the majority of this evidence is drawn from short-term studies conducted within six months post-intervention and focuses on mental health rather than economic outcomes (Schäfer et al., 2023; Singla et al., 2017). A more limited literature assesses effects of psychological interventions one year or more post-program on a wider range of outcomes, and these findings are mixed. For example, Baranov et al. (2020) find significant long-term effects on both mental health and financial empowerment of a cognitive behavioral therapy (CBT) intervention delivered to women experiencing prenatal depression in Pakistan. However, a similar intervention delivered by peers rather than community health workers had null effects (Maselko et al., 2020). A long-term follow-up of two psychotherapy interventions delivered to women in India found that one trial delivered by counselors had positive long-term effects on mental health outcomes, while the other delivered by peers had no significant effects even in the short term, and neither had any impact on economic outcomes (Bhat et al., 2022). For gPM+ delivered to a population of Syrian refugees in Jordan, evidence suggests significant reductions on depression in the short-term (Bryant et al., 2022b) were not sustained 12 months post-treatment (Bryant et al., 2022a).

Second, we contribute to the limited literature assessing complementarities between livelihoods and mental health interventions. While there is a large literature documenting positive effects of cash transfers on mental health (McGuire et al., 2022), few studies investigate the effects of cash transfers implemented jointly with psychological interventions, and even fewer are able to unpack the relative contribution of each component.[4] Blattman et al. (2017) initially demonstrated that, at one year, only the combined cash and cognitive behavioral therapy (CBT) intervention reduced crime and violence for criminally engaged young men in Liberia. However, ten-year follow-up findings (Blattman et al., 2023) revealed that CBT alone was also effective, achieving significant reductions in crime and violence alongside the combined arm. Angelucci and Bennett (2024) assess livelihoods assistance in conjunction with pharmacological treatment for depression in India and find positive sustained effects on depression (but no impacts on economic outcomes), that are observed primarily for the joint intervention, with more limited positive effects of pharmacological treatment alone. In a study with a similar design to this one, Haushofer et al. (2023) in Kenya find persistent positive effects of cash on mental health and economic wellbeing, but no evidence of positive effects of individual PM+ and no evidence of any complementarities. Our results are consistent with the Kenya study in that we find no sustained impacts from gPM+, however, we find some evidence of complementarities of the combined intervention. In contrast, a study by Baird et al. (2025) in Uganda finds that group-based interpersonal therapy improved the mental health and human capital accumulation of adolescent girls at 12 months (but not at 30 months) but the addition of a one-time lump sum transfer negatively impacted their mental health. The Baird et al. (2025) study is unique, however, in that it targets adolescents, occurred during COVID, and the transfer amount is small, all of which may have limited the ability of adolescents to use the cash towards their own goals.

Lastly our findings contribute to both the literature on psychological interventions and cash interventions by exploring how conflict moderates the impacts of these interventions. gPM+ was developed for individuals affected by adversity, including conflict. There is growing evidence on the short-term effectiveness of gPM+ among conflict affected populations, including Syrian refugees displaced to other countries (Acarturk et al., 2024; Bryant et al., 2022b; Rahman et al., 2019). There are also a number of papers exploring the effects of cash on economic or mental health outcomes in post-conflict, humanitarian or refugee settings (Aker, 2017; Altındağ and O'Connell, 2023; Daalen et al., 2022; Özler et al., 2021), with a more limited set of papers focusing on contexts with ongoing conflict (Brune et al., 2022). However, there is very little evidence around how exposure to conflict moderates the impacts of these interventions, in part, due to lack of variation in conflict exposure or absence of available data. The paper most related to our work is a recent paper by Abay et al. (2025), who find that a cash transfer in Ethiopia offsets the adverse impacts of conflict on mental health outcomes. We expand on these findings by investigating how conflict shapes the impact of both a cash transfer and a psychological intervention.

2. Background

2.1. Interventions

This study was conducted in rural Ethiopia as part of the Strengthen PSNP Institutions and Resilience II (SPIR II) Resilience Food Security Activity (RFSA). SPIR II supports the implementation of the fifth phase of the Productive Safety Net Program (PSNP) in the Amhara, Oromia, and Tigray regions, and is led by World Vision. The PSNP is one of the

[3] The findings of null or negative effects of gPM+ alone, and effects of Cash alone on economic outcomes, persist in the no-conflict sample.

[4] A related literature looks at the impact of psychosocial interventions and cash transfers. The psychosocial interventions vary in scope, and include interventions focused on life skills or self-efficacy. For example, Lang et al. (2024) finds that relative to cash a psychologically targeted intervention significantly improves psychosocial outcomes and a life skills intervention significantly improves economic outcomes. Bossuroy et al. (2022) finds that a cash intervention, a psychosocial intervention and the combination, lead to significant improvements on economic outcomes and psychosocial well-being, but the arms with psychosocial interventions were the most cost-effective.

largest social safety net programs in sub-Saharan Africa, providing food and cash transfers to the poorest 20 % of rural households in food insecure districts of Ethiopia.

gPM+ was provided in response to growing descriptive evidence that households served by the PSNP were experiencing meaningful challenges linked to their mental health and psychosocial well-being. gPM+ seeks to address common mental health problems such as depression, stress, and anxiety, and encompasses both psychological and practical challenges. The five sessions include 1) understanding PM+ and managing stress; 2) managing problems; 3) get going, keep doing; 4) strengthening social support; and staying well and looking forward (World Health Organization, 2018). In addition there are pre and post assessments that are conducted by a facilitator. It was initially developed for individual counselling and subsequently adapted to a group intervention (gPM+) (World Health Organization, 2020), with studies in Nepal and Pakistan demonstrating its feasibility and effectiveness (Jordans et al., 2021; Rahman et al., 2019).

In the context of this trial, WHO gPM+ materials were translated and adapted for the local contexts in Amhara and Oromia regions. Same-sex groups of six to eight individuals were formed in the target communities and facilitated by gender-matched community-based program staff. Many of the facilitators had experience implementing prior mental health interventions, and received a nine-day gPM+ training prior to delivery of the intervention. These staff then facilitated five, 90-min group sessions weekly over five weeks from August to September 2022.

In addition, eligible households received a one-time lump sum transfer of 15,000 Birr (about $279 USD) deposited directly into clients' bank accounts.[5] While the cash transfer was unconditional, it was presented as a 'livelihoods transfer' to support income-generating activities. Moreover, examples for how to use the money were focused on livestock production (livestock fattening or improved poultry rearing). In November and December 2022, eligible households participated in an orientation in conjunction with a short technical training on specific productive value chain activities, and were encouraged to develop their own business plans associated with the selected activity. The cash transfers were disbursed between January and March of 2023, at least four months following the conclusion of gPM+.

2.2. *Broader context: conflict in Ethiopia*

The rollout of these interventions together with the randomized controlled trial unfolded in the context of relatively widespread and intensifying violent conflict in Ethiopia. Between November 2020 and November 2022, northern Ethiopia was embroiled in an armed conflict between the Tigrayan People's Liberation Front (TPLF) and the federal government and other armed actors. This conflict was one of the deadliest in recent history, killing approximately 600,000 individuals.[6] While initially confined to Tigray, the conflict spread to neighboring regions of Amhara and Afar in 2021. The occupying armed forces withdrew from the majority of the Amhara region in December 2021, and gPM+ was implemented in this post-conflict context in Amhara in 2022 (albeit with conflict still ongoing in Tigray itself). Peace talks were ultimately convened and led to a formal cessation of violence on November 3, 2022.

However, in the following year a new conflict erupted in Amhara, when the government sought to disband regional special forces that it had armed and engaged in the previous war against the TPLF.[7] This ongoing violence disrupted access and humanitarian assistance in this region, with eight humanitarian workers losing their lives, and increased abductions and targeted assassinations of government officials. Violence and insecurity in Amhara linked to government clashes with regional militia was ongoing throughout 2023.

During this entire period, there was protracted conflict in many parts of Oromia between the government and the Oromo Liberation Army (OLA), leading to a deterioration of security and violence against civilians. This contributed to a surge in criminal activities, notably kidnappings for ransom, and disrupted normal social and economic activities in many parts of the region. However, the specific districts in Oromia targeted for this study were generally not affected by direct conflict, as will become evident when we explore summary statistics around conflict exposure.

3. Methods

3.1. *Study design*

The study uses a cRCT design consisting of four arms constructed in a two-stage randomization procedure. In the first stage, 70 sub-districts (stratified by districts) were randomized to receive cash or no cash. Randomization of the cash treatment was at the sub-district level in order to reduce the risk of spillover effects, contamination, and resentment of participants who did not receive cash. In the second stage, villages within each sub-district were randomized to either receive or not receive gPM+,[8] leading to the following four intervention arms across 252 villages (see Fig. 1)[9]

- Arm-1: control
- Arm-2: gPM+ only
- Arm-3: lump-sum cash transfer only
- Arm-4: lump-sum cash transfer and gPM+

In the villages randomized to receive gPM+, eligible individuals were invited to participate in gPM+ sessions; in each gPM+ village, two therapy groups (one male and one female) of up to eight individuals were formed. In sub-districts randomized to receive cash, eligible individuals received a one-time lump sum transfer of 15,000 Birr.

3.2. *Eligibility*

The study includes 252 villages across 70 sub-districts in 13 districts in Amhara and Oromia regions.[10] Only households that were registered and assisted by the public works component of the Productive Safety Net Program (PSNP) were eligible to be included in the study, consistent with SPIR II program design. Within these households, up to two

[5] The amount of the transfer and the structure of some of the related support aligned with the PSNP5 livelihoods transfer guidance. The original PSNP5 design documents envisioned that 20 % (550,000 HH) of PSNP households would be selected for livelihood support activities, with 30 % of these households targeted to receive livelihoods transfers of $300.

[6] "https://www.cfr.org/global-conflict-tracker/conflict/conflict-ethiopia".

[7] "https://www.crisisgroup.org/africa/horn-africa/ethiopia/b194-ethiopias-ominous-new-war-amhara".

[8] Although most sub-districts have between three and five villages, the exact number of villages per sub-district varies.

[9] Randomization was conducted in Stata by the research team following the screening survey, and used the *randtreat* command. At each phase of randomization, misfits were randomly assigned within each strata, leading to slightly unequal number of villages per treatment arm.

[10] The sample districts in Amhara are Sekota, Gazgibla, Dahina, Bugna, Lasta, Gazo, Wadla, and Meket. The sample districts in Oromia are Girawa, Kurfachele, Gemechis, Darolebu, and Chiro. The 70 sub-districts were purposively sampled according to the prior activities of implementing partner. In particular, sampled sub-districts were those that 1) previously received enhanced nutrition interventions either through Community Health facilitators or Men's Group Facilitators and thus had trained staff, 2) were not experiencing armed conflict or immediately adjacent to areas experiencing armed conflict (at the time of the randomization), and 3) were accessible.

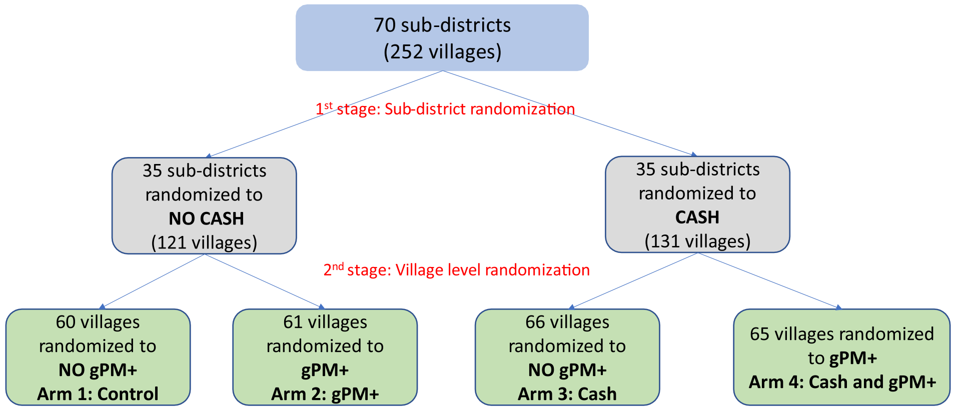

Fig. 1. Study design.

individuals aged 18–59 years were screened for depression and functionality (the primary decision-maker and spouse); this criterion was imposed given that the relationship between mental health and economic decision-making is more relevant for the main household decision-makers. Eligible individuals were PSNP clients in this age range who, upon screening, exhibited symptoms of depression or dysfunction as assessed using the Patient Health Questionnaire (PHQ-9) and the WHO Disability Assessment Schedule 2·0 (WHODAS). Individuals with a PHQ-9 score between 5 and 19 or a WHODAS score of 17 or above were eligible for the study. The PHQ-9 has been validated in Ethiopia, and a cutoff of five or above was selected to target mild to moderate depressive symptoms that are often comorbid with emotional distress symptoms targeted by gPM+ (Bitew et al., 2021; Hanlon et al., 2015; Keynejad et al., 2020).

Individuals who reported being at moderate or high risk of suicidality (as assessed using Columbia-Suicide Severity Rating Scale) did not enter the study. They were instead immediately referred to appropriate care generally provided at a regional public health facility offering psychiatric services, as were individuals with symptoms of severe depression (PHQ-9>20).

According to the screening survey, the incidence of depressive symptoms among PSNP clients in study areas is non-trivial, with approximately 27 percent of individuals revealing mild-to-severe levels of depressive symptoms (PHQ-9 $\geq$ 5) and five percent revealing moderate-to-severe symptom levels (PHQ-9 $\geq$ 10). The mild-to-severe rates in the study areas are slightly higher than the 22 percent prevalence rate of common mental illness reported in a systematic review of the general Ethiopian population (Kassa and Abajobir, 2018).

3.3. Data

3.3.1. Survey data

The data collection consisted of a short screening survey in study villages (June 2022) designed only to identify eligibility as described above, followed by a baseline survey conducted shortly after the screening (July–August 2022) for eligible individuals. Following the intervention, two follow-up surveys were conducted (see Fig. 2 for a timeline of activities). The short-term follow-up was conducted approximately two months after the baseline survey (September–October 2022), soon after the gPM+ intervention was completed but prior to cash disbursement. The longer-term follow-up was conducted approximately 14–18 months after the baseline survey, which was a little over a year after gPM+ was completed and approximately 7–10 months after the cash disbursement. Due to conflict in the implementation areas, the latter survey occurred in two waves with data collection occurring first in Oromia (October–November 2023) and then in Amhara (November 2023–January 2024).

The baseline and follow-up questionnaires were composed of two parts. The first part comprised of household-level modules such as household roster, housing, assets, consumption, food security, investments, and experience of shocks such as adverse weather events, death of family members and conflict. The second part was composed of individual-level modules including depression, stress, anxiety, coping, self-efficacy, time and risk preference (economic preferences that can predict a wide range of individual decisions and behaviors), savings, intimate partner violence, time use, and childcare. In the short-term follow-up, we also asked about participants' experience with the gPM+ sessions and in the longer-term follow-up, their receipt of the lump-sum cash transfer. Ethical review was provided by the International Food Policy Research Institute and the Ethiopian Public Health Association[11].

3.3.2. ACLED data

To construct a conflict exposure indicator, we use the Armed Conflict Location and Event Data (ACLED) (Raleigh et al., 2010). ACLED contains disaggregated incident information on political violence and protests around the world, drawing on local and international sources and coding information on dates, actors, locations, fatalities, and types of events. Events in the database are categorized as battles, explosions (remote violence), protests, riots, strategic developments and violence against civilians.

In this study, we concentrate on violent events (battles, explosions, non-peaceful protests, riots) and exclude events categorized as strategic developments and peaceful protests, as well as events with the lowest geocoded precision. We then construct a household-level indicator of exposure to conflict equal to the number of violent events within 25 km from each study household in the 12 months prior to each survey round; since our primary analysis uses data from the longer-term follow-up, we are primarily exploiting variation in conflict exposure during the year following the implementation of gPM+ and prior to this survey.[12] Fig. 3 shows the geo-spatial distribution of study households and their levels of conflict and Fig. 4 shows histograms of exposure to conflict in each region. Both figures report on conflict in the year prior to the longer-term survey and reveal the variation in conflict exposure is concentrated in Amhara. In Amhara, the mean number of local violent events is 7.8, with some households exposed to up to 20 separate conflict events; while in

[11] All study participants, regardless of intervention arm, received information on locally available mental health services. The study team also provided women with information on gender-based violence services, referring them to health facilities with psychiatric services when requested

[12] The respective periods over which conflict is constructed are July 2021–June 2022 for the baseline survey, Oct 2021–Sept 2022 for the short-term follow-up survey, Oct 2022–Sept 2023 for the longer-term follow-up survey in Oromia region (where data collection was conducted earlier) and Dec 2022–Nov 2023 for the longer-term follow-up survey in Amhara region.

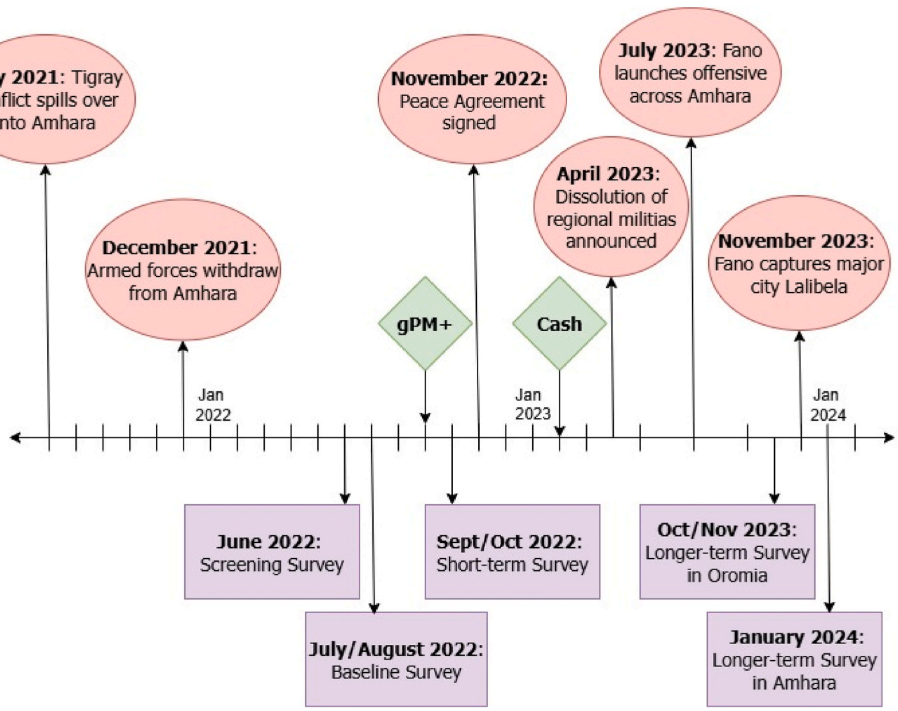

Fig. 2. Timeline of activities.

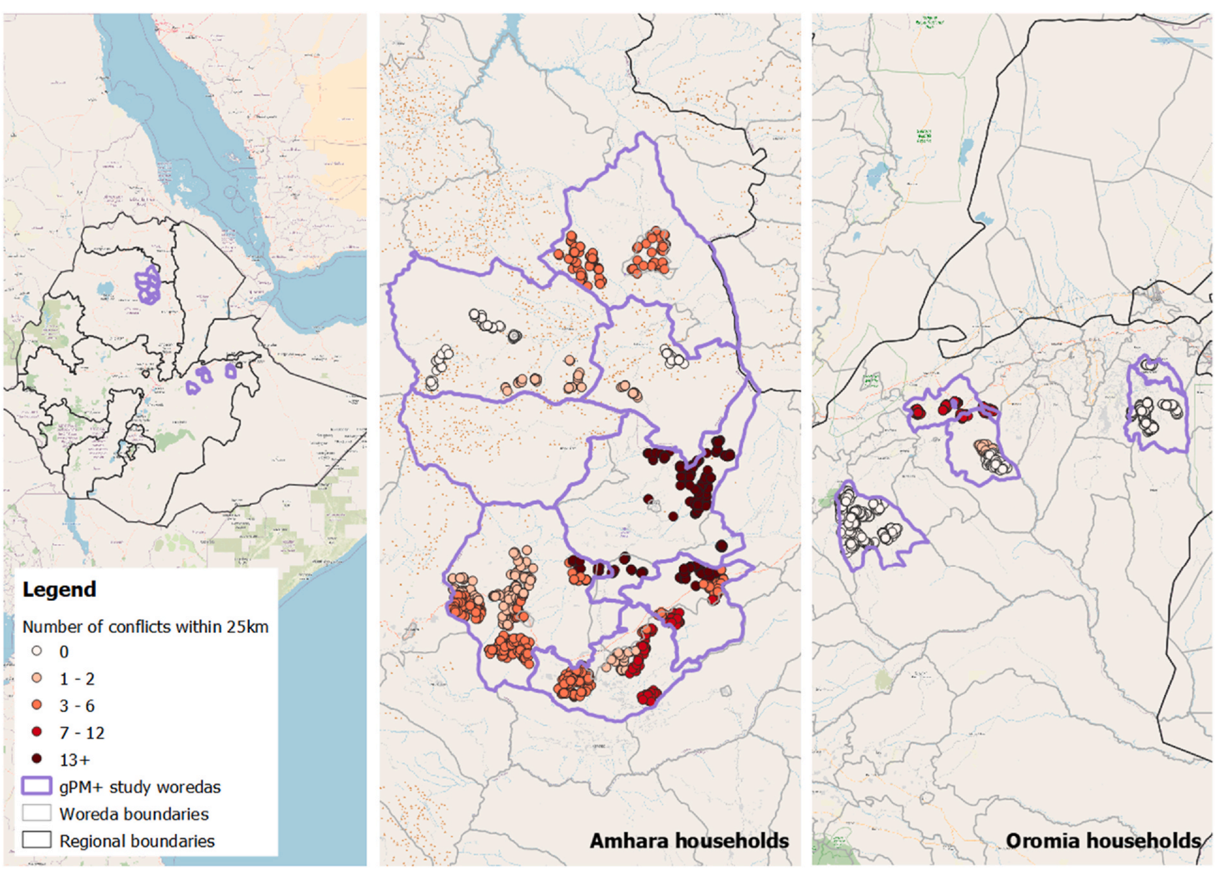

Fig. 3. Geo-spatial distribution of study households and conflict exposure at longer-term follow-up survey.

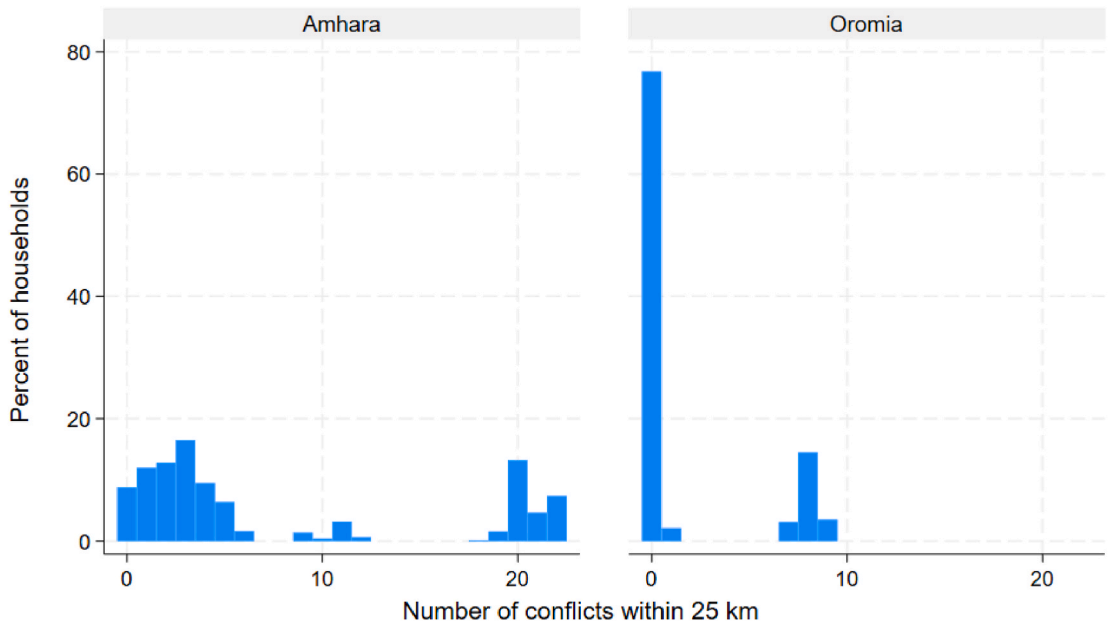

Fig. 4. Histogram of conflict exposure in the 12 months prior to the longer-term follow-up survey.

Oromia, the mean number of local conflict events is 1.7, with nearly 80 % of households exposed to no conflict.

3.4. Sample and attrition

Fig. 5 summarizes the progression of the sample across survey rounds. The study includes 252 villages randomized into one of four different intervention arms. The screening survey was conducted on 13,433 individuals across 9457 households, of which 65 % (or 8717 individuals) were deemed ineligible for the study and 35 % (or 4716 individuals) were eligible for the study. As each village could only administer two gPM+ groups of 8 individuals each (maximum of 16 individuals per village), not everyone that was eligible was invited to participate.[13] Instead, 3055 eligible individuals were randomly sampled and invited to be included in the study and baseline survey, and 2990 completed the baseline survey. Within the sample of individuals that completed the baseline survey, 2916 completed the short-term follow-up survey, and 2726 completed the longer-term follow-up survey. For the longer-term follow-up, one district (Bugna), was inaccessible due to the conflict and thus not surveyed; this district accounts for 33 % of the attrition in the longer-term follow-up.[14]

Appendix Table A1 summarizes the patterns of attrition across treatment arms. The attrition rate in the control arm is five percent in the short-term follow-up and nine percent in the longer-term follow-up. While we find no differential attrition across arms for either survey round, in the short-term follow-up, those randomized to receive cash (Cash or Cash & gPM+) were less likely to attrit than those randomized to receive gPM+ only.

4. Estimation

4.1. Outcomes

The outcomes of interest for this study include mental health, childcare, psychosocial skills, time use, and economic wellbeing. The mental health-related outcomes include depressive symptoms as measured by the PHQ-9, stress as measured by the Perceived Stress Scale (PSS-10), post-traumatic stress as measured by an abbreviated version of the Post-traumatic Stress Disorder Checklist: Civilian Scale (PCL-C), anxiety as measured by the General Anxiety Disorder 7 (GAD-7), and functional impairment as measured by the WHO Disability Assessment Schedule 2.0 (WHODAS 2.0). Childcare indicators include the number of activities for children 0–5 years, number of activities for children 6–15 years, child discipline, and child neglect. Psychosocial skills include coping skills (as measured by an abbreviated Brief Cope, tension reduction strategies, alcohol, and khat[15] consumption), self-efficacy, and social support. Time use includes hours worked (self-reported over the past 24 h) in four different income-generating activities: crop farming, livestock, other household business, and wage labor.[16] Lastly, the economic outcomes include the total value of productive assets, the total value of monthly per capita consumption expenditures, food insecurity (as measured by the Food Insecurity Experience Scale (FIES)), and whether a respondent had any savings.

For all outcomes we create raw scores and then standardize them using the control group's mean and standard deviation; where needed, we reverse code outcomes so that higher scores represent better outcomes. We also create summary indices at the domain level following

[13] Each village randomly sampled and invited up to 16 eligible individuals (eight female and eight male) to be included in the study and baseline survey. Many villages did not have 16 eligible individuals, in which case, all individuals in that village were included. One village did not have any eligible individuals and was subsequently dropped from the study, leading to 251 study villages.

[14] This district was composed of 12 villages (one control, four Cash, two gPM+, and five Cash + gPM+) and included 108 households.

[15] Khat is a plant (*Catha edulis*) that has been used as a stimulant for centuries in Ethiopia. It is typically chewed like tobacco.

[16] In our pre-analysis plan we specified time use as part of childcare, however, upon further consideration we concluded the outcomes capture different constructs and domains and thus should be separated.

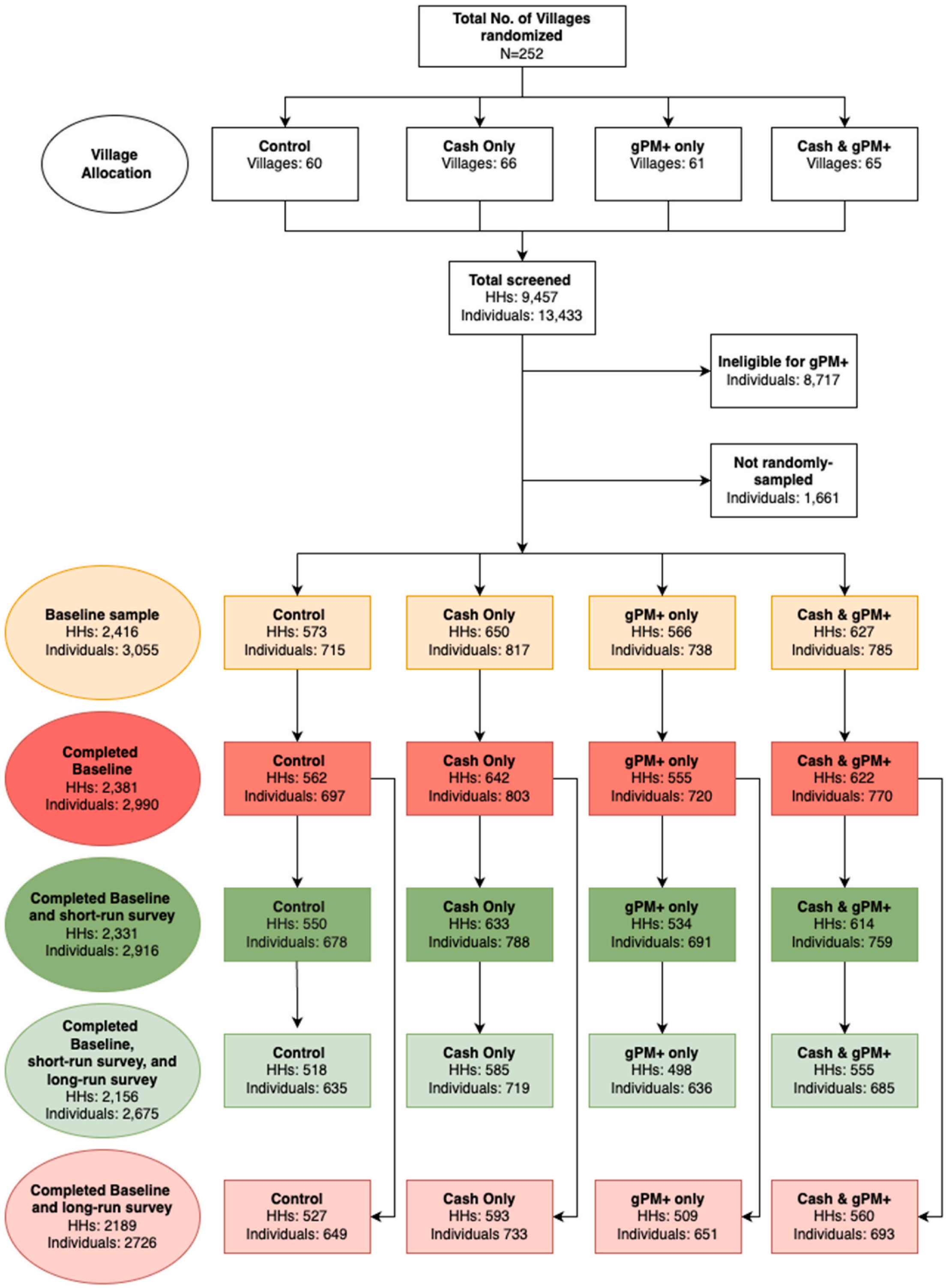

Fig. 5. Flow chart of survey participants.

Kling et al. (2007), whereby we calculate the simple unweighted mean across the standardized outcomes within the domain.[17] The group of indicators included in each domain and details on their construction are listed in Appendix Table B1.

4.2. Empirical strategy

We estimate intent-to-treat (ITT) effects using an ANCOVA model when baseline outcome variables are available.[18] The main specification is as follows:

$$Y^{s}_{ivkw} = \beta_0 + \beta_1 Cash_{vkw} + \beta_2 gPM_{vkw} + \beta_3 Cash\&gPM_{vkw} + \beta_4 X^{0}_{ivkw} + \beta_5 Y^{0,s}_{ivkw} + \gamma_w + \varepsilon_{ivkw} \tag{1}$$

Y^{s}_{ivkw} is the outcome of interest at follow-up for individual i from village v in sub-district k and district w, where the subscript s indicates that it is standardized relative to the mean and standard deviation in the control arm; and $Y^{0,s}_{ivkw}$ is the outcome of interest at baseline. The main variables of interest are binary variables for the three treatment arms; X^{0}_{ihvkw} is a vector of pre-specified baseline control variables that includes age and sex of the respondent for individual level outcomes. The specification also accounts for the cluster randomized design by including district fixed effects (the strata employed in the randomization), γ_w, and clustering the standard errors at the sub-district level (the level at which randomization was conducted).[19]

In this model, β_1 estimates the effects of the cash only treatment compared to the control arm; β_2 the effects of the gPM+ only treatment compared to the control arm; and β_3 the impact of the cash and gPM+ treatment compared to the control arm. We also test whether impacts are equal across treatment arms and report the corresponding p-value.

Given that our main outcomes are aggregate indices, we do not adjust for multiple hypothesis testing in these regressions. However, when we analyze outcomes for each individual indicator included in the aggregate indices, we also report sharpened q-values that are adjusted for multiple hypothesis testing. We correct for multiple tests of one coefficient across all variables within a domain and the resulting q-values represent the minimum uncorrected p-value threshold for which that p-value would be in the discovery set, following a Bonferroni correction procedure (Newson, 2010).[20]

5. Empirical findings

5.1. Baseline balance and summary statistics

Table A2 presents screening and baseline summary statistics by arm for the longer-term analysis sample, allowing us to assess characteristics of the sample and balance across treatment arms. Slightly under 50 % of respondents are male, characterized by an average age around 36; the overwhelming majority (more than 80 %) of respondents are married, and around 40 % report some schooling. Consistent with the targeting of the PSNP, the households are generally engaged in farming and livestock rearing and are characterized by meaningful food insecurity: the average FIES score is five, in the range of moderate food insecurity.

Sample individuals are characterized by a PHQ-9 score of around six, consistent with mild depression, and a WHODAS score of around 20, suggestive of dysfunction; around half of the individuals were identified as eligible based on both their PHQ-9 and WHODAS scores, and around 25 % identified as eligible based on their score on one instrument alone. The sample households are also characterized by meaningful exposure to conflict at baseline; about 65 % of households had been exposed to conflict in the 12 months prior to the baseline survey, corresponding to a period in which much of northern Amhara was the site of active fighting between the TPLF and the federal government and was partially occupied by the TPLF. The average number of conflict incidents as reported by ACLED ranges from 11 to 17, depending on the treatment arm.

In the final column of Table A2, we report the p-value from a joint test of the hypothesis that there is a significant difference in means comparing across any treatment arm. All baseline characteristics are balanced, with the exception of the WHODAS score. The average WHODAS score is slightly lower in the Cash & gPM+ arm compared to the other treatment arms.

5.2. Program adherence

Appendix Figure C1 summarizes the percentage of respondents who reported attending gPM+ in the short-term follow-up survey. As shown in the figure, nearly 90 percent of respondents attended gPM+ in the arms randomized to receive it, attending an average of 4.6 sessions out of five (Appendix Figure C2).

Appendix Figure C3 summarizes the percentage of respondents in the longer-term follow-up who reported receipt of a one-time unconditional cash transfer. As expected, nearly all respondents assigned to the cash treatment arms reported receiving a one-time transfer, whereas only a

Table 1
Experimental effects in longer-term.

	(1) Mental health	(2) Childcare	(3) Psychosocial	(4) Time use	(5) Economic
Cash	0.058	0.007	0.019	0.059*	0.215***
	(0.056)	(0.025)	(0.025)	(0.031)	(0.045)
gPM+	−0.063	0.004	0.032	−0.050**	−0.060
	(0.047)	(0.028)	(0.028)	(0.022)	(0.038)
Cash & gPM+	0.095	0.027	0.059**	0.082***	0.234***
	(0.063)	(0.031)	(0.025)	(0.029)	(0.046)
P-value: gPM+ vs. Cash & gPM+	0.016**	0.443	0.340	0.000***	0.000***
P-value: Cash vs. Cash & gPM+	0.418	0.343	0.091*	0.334	0.550
P-value: Cash vs. gPM+	0.041**	0.915	0.653	0.001***	0.000***
N	2726	2600	2726	2726	2726

Standard errors (in parenthesis) are clustered at the sub-district level. Asterisks indicate significance at the 10, 5, and 1 percent level. All regressions control for age and gender of the respondent and district-level fixed effects. All regressions, except childcare, control for the baseline value of the outcome of interest. Cash refers to those randomized to only receive cash, gPM+ refers to those randomized to only receive gPM+, and Cash & gPM+ refers to those randomized to receive both. All outcome indices are the means of the individual standardized indicators within each domain, where the indicators and the treatment effects on them can be found in Tables D2 (mental health), D3 (childcare), D4 (psychosocial), D5 (time use), and D6 (economic) in the Appendix.

[17] The process for creating the summary index following Kling et al. (2007) entails the following steps: any outcomes requiring reverse-coding are reverse-coded such that a positive shift indicates a better value. Each outcome is then standardized relative to the mean and standard deviation in the control arm, and then the summary index is calculated as the simple unweighted mean across outcomes within the domain.

[18] We do not have baseline outcome variables for the childcare index or some individual indicators such as consumption and tension reduction.

[19] Including fixed effects for the strata employed in randomization (in this case districts) and clustering at the level at which randomization was conducted (in this case sub-districts) is consistent with best practices for analysis of clustered randomized trials (Duflo et al., 2007).

[20] Intuitively, the Bonferroni correction adjusts the phenomenon in which researcher simultaneously estimate many statistical tests by imposing a stricter threshold for significance—dividing the threshold by the number of tests. This reduces the probability of finding results that are statistically significant simply by chance.

small proportion (under 10 percent) in non-cash arms reported receiving a transfer. The average transfer amount was slightly under 15,000 Birr in the cash arms (Appendix Figure C4), indicating high compliance with the experimental design. The majority of respondents in the cash treatment arms also reported receiving livelihoods training or technical support in conjunction with the cash transfer (Appendix Figure C5), with a higher percentage reporting training in the Cash & gPM+ arm (86 percent) compared to the Cash only arm (78 percent).

5.3. Primary findings

Table 1 reports the effects of each treatment on the domains of interest as measured in the longer-term follow-up; all domains are coded such that a higher value indicates a better outcome. The last three rows of the table report p-values corresponding to tests evaluating whether impacts differ across each treatment arm.

The findings show that the gPM+ arm does not have sustained positive impacts on any domain, and there is in fact a significant decline of 0.05 SDs in the time-use domain. The Cash arm leads to an increase of 0.22 SDs in the economic domain and a marginally significant increase (0.06 SDs) in the time use domain, but no impact on other domains. The Cash & gPM+ arm leads to significant improvements in psychosocial skills (0.06 SDs), time use (0.08 SDs), and economic outcomes (0.23 SDs), but no effects on mental health or childcare. For economic outcomes, the hypothesis that the effects are identical with and without gPM+ cannot be rejected; however, for psychosocial outcomes, the effect of Cash & gPM+ is significantly larger than the effect of Cash alone. As a robustness check, we estimate the same specification without the individual-level control variables (age and sex) and find a virtually identical pattern (Appendix Table D1).

Appendix Tables D2 through D5 present the findings for each individual indicator included in the aggregate indices. In the domain of mental health, the only effect that is statistically significant is a positive effect on stress (reduced symptoms of stress) in the Cash & gPM+ arm (Column 4, Table D2), with weak evidence of reduced symptoms of PTSD in the same arm (Column 5). There is also some weak evidence of declining mental health in the gPM+ arm (particularly, deterioration in the WHODAS score, Column 2).

The effects for childcare (Appendix Table D3) are also generally null, with the exception of a reduction in non-violent discipline in the Cash & gPM+ arm and some weak evidence of an increase in childcare activities in the same arm. For psychosocial outcomes (Appendix Table D4), we find that gPM+ (with and without cash) leads to large impacts on tension reduction strategies, but effects on other outcomes are generally insignificant (exception is an increase in social support from the Cash & gPM+ arm). Since the tension reduction strategies assessed in the questionnaire were drawn directly from the gPM+ curriculum (and include requesting help from and communicating more with friends and family, engaging in deep breathing, and breaking down problems into smaller components to brainstorm solutions), this suggests participants were retaining and applying (or self-reporting the application of) the learned techniques in the longer term. For income-generating time use, there is a weak decline in hours devoted to farming (cropping) in both the Cash and Cash & gPM+ arms, with a much larger (more than 0.3 SDs) increase in hours worked in livestock (Appendix Table D5).[21] In the gPM+ arm, by contrast, time worked in non-agricultural household business declines (0.13 SDs), with negative, though insignificant, coefficients observed for other activities as well. For economic outcomes, cash (with and without gPM+) leads to large positive effects on assets and savings but no impact on consumption or food security. We also find some weak evidence that gPM+ leads to decreases in savings and consumption (Appendix Table D6). The increased investment in assets (in practice, overwhelmingly livestock) is consistent with the pattern of increased time devoted to income generation from livestock.

Table 2
Experimental effects in longer-term: Heterogeneity by region.

	(1) Mental health	(2) Childcare	(3) Psychosocial	(4) Time use	(5) Economic
Cash	0.090	0.039	0.088**	0.079*	0.338***
	(0.083)	(0.046)	(0.037)	(0.044)	(0.066)
gPM+	−0.037	0.008	0.056	−0.066*	−0.021
	(0.094)	(0.047)	(0.044)	(0.035)	(0.059)
Cash & gPM+	0.171**	0.087*	0.107***	0.091***	0.321***
	(0.083)	(0.050)	(0.037)	(0.034)	(0.069)
Amhara region	−0.236***	0.091	0.012	−0.128	0.153
	(0.086)	(0.065)	(0.045)	(0.104)	(0.125)
Cash x Amhara	−0.059	−0.062	−0.127**	−0.036	−0.224***
	(0.111)	(0.051)	(0.048)	(0.063)	(0.084)
gPM+ x Amhara	−0.046	−0.004	−0.043	0.031	−0.069
	(0.099)	(0.057)	(0.056)	(0.044)	(0.075)
Cash & gPM+ x Amhara	−0.153	−0.126**	−0.094*	−0.019	−0.170*
	(0.124)	(0.058)	(0.050)	(0.057)	(0.090)
Effect of Cash in Amhara	0.030	−0.023	−0.038	0.043	0.114**
	(0.074)	(0.021)	(0.031)	(0.044)	(0.052)
Effect of gPM+ in Amhara	−0.083***	0.004	0.013	−0.035	−0.090*
	(0.030)	(0.032)	(0.035)	(0.027)	(0.046)
Effect of Cash & gPM+ in Amhara	0.017	−0.040	0.013	0.072	0.151**
	(0.092)	(0.029)	(0.033)	(0.046)	(0.058)
N	2726	2600	2726	2726	2726

Standard errors (in parenthesis) are clustered at the sub-district level. Asterisks indicate significance at the 10, 5, and 1 percent level. All regressions control for age and gender of the respondent and district-level fixed effects. All regressions, except childcare, control for the baseline value of the outcome of interest. Cash refers to those randomized to only receive cash, gPM+ refers to those randomized to only receive gPM+, and Cash & gPM+ refers to those randomized to receive both. All outcome indices are the means of the individual standardized indicators within each domain.

5.4. Heterogeneity by region and conflict

As previously noted, this trial unfolded in the context of roiling conflict across large parts of the country. To explore the effects of conflict, we first analyze heterogeneous effects by region and then use ACLED to identify households' exposure to conflict events and explore to what extent the regional differences are due to conflict.

The findings reported in Table 2 suggest that the positive effects of the intervention are overwhelmingly concentrated in Oromia, where the study districts were characterized by relatively low conflict both prior to and during the study period. In Oromia, Cash leads to significant positive effects in the psychosocial and income-generating time use domains of around 0.08–0.09 SDs and an increase in the economic domain of 0.34 SDs. Moreover, Cash implemented in conjunction with gPM+ leads to significant increases in all five outcome domains: a 0.17 SD increase in the mental health domain, a 0.09 SD increase in the childcare domain, a 0.11 SD increase in the psychosocial domain, a 0.09 SD increase in the income-generating time use domain, and a 0.32 SD increase in the economic domain. The finding that gPM+ alone has no effect on any domain (other than a weakly negative effect on time use) remains unchanged, however.

Examining the interaction effects for Amhara, it is evident that the experimental effects observed for the sample in this region are smaller in all five domains; the final rows of the table report the net effect of the interventions in Amhara. Here, we observe that Cash and Cash & gPM+

[21] To note, that although we find a shift in hours worked away from farming and towards livestock, total hours worked in income generating activities does not increase significantly as a result of the interventions.

Table 3
Experimental effects in longer-term: Heterogeneity with respect to conflict exposure.

	(1)	(2)	(3)	(4)	(5)
	Mental health	Childcare	Psychosocial	Time use	Economic
Cash	0.093	0.024	0.032	0.053	0.238***
	(0.070)	(0.033)	(0.032)	(0.038)	(0.053)
gPM+	−0.074	−0.007	0.006	−0.051**	−0.042
	(0.070)	(0.035)	(0.033)	(0.025)	(0.048)
Cash & gPM+	0.177**	0.055	0.074**	0.074**	0.288***
	(0.074)	(0.039)	(0.031)	(0.035)	(0.054)
Number of conflicts within 25 km	−0.011*	0.006*	−0.004	−0.002	0.010
	(0.006)	(0.004)	(0.004)	(0.003)	(0.008)
Cash x Number of conflicts	−0.005	−0.004	−0.002	0.001	−0.006
	(0.006)	(0.003)	(0.003)	(0.003)	(0.007)
gPM+ x Number of conflicts	0.004	0.001	0.005	0.001	−0.005
	(0.006)	(0.003)	(0.003)	(0.002)	(0.005)
Cash & gPM+ x Number of conflicts	−0.016**	−0.007*	−0.003	0.002	−0.013**
	(0.007)	(0.004)	(0.004)	(0.003)	(0.005)
Cash at mean level of conflict, Amhara	0.058	−0.009	0.017	0.064**	0.194***
	(0.047)	(0.023)	(0.025)	(0.030)	(0.048)
gPM+ at mean level of conflict, Amhara	−0.045	−0.001	0.045	−0.047**	−0.079*
	(0.044)	(0.026)	(0.028)	(0.023)	(0.040)
Cash & gPM+ at mean level of conflict, Amhara	0.056	0.000	0.052*	0.089***	0.191***
	(0.054)	(0.028)	(0.027)	(0.028)	(0.044)
Cash at mean level of conflict, Oromia	0.086	0.017	0.029	0.055	0.229***
	(0.063)	(0.030)	(0.029)	(0.035)	(0.047)
gPM+ at mean level of conflict, Oromia	−0.067	−0.006	0.015	−0.050**	−0.050
	(0.062)	(0.032)	(0.030)	(0.024)	(0.043)
Cash & gPM+ at mean level of conflict, Oromia	0.150**	0.043	0.069**	0.077**	0.267***
	(0.067)	(0.035)	(0.027)	(0.032)	(0.049)
N	2726	2600	2726	2726	2726

Standard errors (in parenthesis) are clustered at the sub-district level. Asterisks indicate significance at the 10, 5, and 1 percent level. All regressions control for age and gender of the respondent and district-level fixed effects. All regressions, except childcare, control for the baseline value of the outcome of interest. Cash refers to those randomized to only receive cash, gPM+ refers to those randomized to only receive gPM+, and Cash & gPM+ refers to those randomized to receive both. All outcome indices are the means of the individual standardized indicators within each domain, where the indicators and the treatment effects on them can be found in Tables D7 (mental health), D8 (childcare), D9 (psychosocial), D10 (time use), and D11 (economic) in the Appendix. The estimates reported in the second panel of the table are the linear combinations corresponding to the estimated experimental effect at the mean level of conflict observed in each region in the long-term follow-up survey, 7.7 in Amhara and 1.7 in Oromia.

enhance economic outcomes, but the experimental effects (0.11 SDs and 0.15 SDs) are less than half the magnitude of the corresponding coefficients observed for the Oromia sample. There is no evidence of any positive effects in the mental health, childcare, psychosocial, or time use domains for any treatment arm, with the coefficients of interest close to zero and in some cases negative. In fact, in the arm including gPM+ alone we observe significant negative effects in economic and mental health domains (around 0.08–0.09 SDs). One hypothesis consistent with this pattern is that these households attempted new livelihood strategies or other life changes as encouraged by their participation in gPM+, but the renewed onset of conflict proved to be so disruptive that in the absence of any cash buffer, they experienced both economic setbacks and associated deterioration in their mental health.

Table 3 presents a parallel specification assessing heterogeneity with respect to conflict exposure as measured by ACLED. Again, the conflict variable is defined as the number of violent events experienced within 25 km of the household over the past twelve months. In this specification, the main coefficients can be interpreted as the effects of the intervention of interest for a household exposed to zero conflict in the year prior to the longer-term follow-up survey, while the interaction effects capture how the main effect shifts with incremental exposure to one additional conflict event. The findings suggest that for households exposed to no conflict, Cash leads to significant enhancements in the economic domain (0.24 SDs); gPM+ alone has no impact on any domain (other than a negative effect on time use); and Cash & gPM+ leads to significant improvements in mental health (0.18 SDs), psychosocial wellbeing (0.07 SDs), income-generating time-use (0.07 SDs), and economic outcomes (0.29 SDs). This pattern of findings is very similar to the pattern reported previously for the Oromia sample, and this is arguably unsurprising: 40 % of the pooled sample was exposed to zero conflict in the year prior to the longer-term follow-up survey, and these households are overwhelmingly (87 %) concentrated in Oromia.

The interaction terms with conflict are generally negative, implying that exposure to conflict events attenuates the positive treatment effects toward zero. However, this pattern is observed primarily for the Cash & gPM+ arm given that the primary effects for the other two arms are largely null. The interaction effects suggest that the positive effects of the joint intervention attenuate by 0.01–0.02 SDs with exposure to each additional conflict event, implying that (for example) the positive shift in mental health would be attenuated to zero with exposure to eight conflict events; this is exactly the mean level of conflict events observed in Amhara. The bottom rows of the table report the implied effect for a household characterized by the mean level of conflict exposure in Amhara and Oromia, respectively, and here we again see findings broadly consistent with what we previously observed in Table 2: the interventions of interest yield null effects in a more conflict-affected population, other than some positive effects on economic and time use outcomes in the sub-arms that receive cash, while the joint intervention leads to positive effects across multiple domains in a non-conflict-affected population.

To identify the variables that are driving shifts in the broader outcome domains, we explore heterogenous effects with respect to conflict on the individual indicators that make up the aggregate indices; again, all indicators are reverse-coded such that a higher value indicates a better outcome. The findings reported for mental health variables in Appendix Table D7 show positive effects of Cash & gPM+ for households not exposed to conflict across all measures of mental health analyzed, with the exception of the WHODAS score (where the estimated coefficient is positive, but insignificant). For households not exposed to conflict, the intervention leads to positive shifts in the PHQ-9 score (capturing depressive symptoms), the GAD score (capturing anxiety), the PSS score (capturing stress), and the PTSD score (capturing post-traumatic stress), all between 0.16 and 0.29 SDs; however, the effect for depressive symptoms is only marginally significant. The largest effects are observed for stress and post-traumatic stress, while the shifts in symptoms of anxiety and depression are smaller in magnitude and more noisily estimated, suggesting that the intervention was primarily effective in reducing stress-related symptoms. Conflict attenuates these positive impacts for all indicators employed. Cash also leads to shifts of slightly under 0.2 SDs in the stress and post-traumatic stress indicators for households not exposed to conflict, though these coefficients are not

Table 4
Experimental effects in short-term.

	(1) Mental health	(2) Childcare	(3) Psychosocial	(4) Time use
Combined arms				
gPM+ arms	0.126**	0.049*	0.104***	−0.002
	(0.049)	(0.026)	(0.019)	(0.013)
Individual arms				
Cash	−0.079	−0.017	0.006	−0.009
	(0.056)	(0.045)	(0.032)	(0.022)
gPM+	0.007	0.038	0.088***	−0.003
	(0.070)	(0.038)	(0.030)	(0.020)
Cash & gPM+	0.156**	0.042	0.126***	−0.011
	(0.061)	(0.052)	(0.033)	(0.025)
P-value: gPM+ vs. Cash & gPM+	0.051*	0.930	0.210	0.785
P-value: Cash vs. Cash & gPM+	0.000***	0.079*	0.000***	0.923
P-value: Cash vs. gPM+	0.236	0.194	0.008***	0.819
N	2675	2484	2675	2675

Standard errors (in parenthesis) are clustered at the sub-district level. Asterisks indicate significance at the 10, 5, and 1 percent level. All regressions control for age and gender of the respondent and district-level fixed effects. All regressions, except childcare, control for the baseline value of the outcome of interest. Cash refers to those randomized to only receive cash, gPM+ refers to those randomized to only receive gPM+, and Cash & gPM+ refers to those randomized to receive both. Combined arms in Panel A refers to pooled gPM+ and Cash & gPM+ arms ("gPM+ arms"), with the control arm and Cash arm being the pooled reference group. All outcome indices are the means of the individual standardized indicators within each domain.

significant at the 10 percent level when corrected for multiple hypothesis testing; again, the positive effects seem to be concentrated in indicators linked to stress, and are not observed for anxiety and depression. Moreover, these shifts are not sufficient to lead to a significant improvement in the overall mental health index in the Cash only arm.

Appendix Table D8 explores the patterns for childcare indicators. For households not exposed to conflict, the joint arm leads to a decline in non-violent child discipline of 0.19 SDs and a large increase in the child neglect indicator of 0.24 SD, again, reverse-coded such that a positive shift corresponds to reduced child neglect (see Appendix Table B1 for more details on variable construction). For both these indicators, exposure to conflict steadily attenuates the experimental effects in the Cash & gPM+ arm toward zero.

For psychosocial indicators as reported in Appendix Table D9, the large positive effects in the Cash & gPM+ arm for households not exposed to conflict are primarily driven by positive shifts in perceived social support (or MSPSS), self-efficacy (or SES), and the use of tension reduction strategies; the latter effect is particularly large, at 0.28 SDs. The increase in the use of tension reduction strategies is also observed in the gPM+ only arm. There are, however, no shifts in indicators of substance use or coping strategies. In addition, the pattern of attenuation with respect to conflict exposure is weaker, consistent with the previous evidence that these effects, though small in magnitude at the domain level, are more consistently observed throughout the sample.

Appendix Table D10 explores the evidence around income-generating time use. For households not exposed to conflict, we observe an increase in hours worked in livestock in the arms receiving cash and declines in hours worked on other business in the arm receiving gPM+, but the heterogeneity with respect to conflict exposure is limited and only observed in the Cash arm. Finally, detailed findings for economic indicators are reported in Appendix Table D11. Here, we observe that for households not exposed to conflict, the cash transfer (with or without gPM+) leads to large increases in total asset value (of around 0.3 SDs) and the probability of savings (of around 0.6 SDs). Interestingly, there is no significant shift in food security even for households not exposed to conflict and weak improvements in consumption for the Cash & gPM+ arm, a pattern somewhat distinct from the broader evidence on cash transfers. Conflict meaningfully attenuates the impact of cash (with and without gPM+) on savings, but does not attenuate it fully to zero.

5.5. Short-term follow-up

Our primary findings described above suggest that gPM+ alone does not enhance mental health (or shift other outcomes of interest) in the longer-term; one hypothesis is that the initial effects of gPM+ have faded. We explore this possibility by investigating the effects observed in the short-term follow-up survey (conducted approximately one month following the conclusion of gPM+ sessions, and prior to cash disbursement). We use two specifications, one that pools across the two gPM+ treatment arms and estimates an experimental effect relative to the pooled cash and control arm (as neither had received any intervention at the time of the survey), and one that estimates separate coefficients for all four treatment arms. The findings are reported in Table 4 and suggest that the pooled gPM+ arm had positive effects in the mental health, childcare, and psychosocial domains when compared to the pooled control and cash arm; there is no shift in time use.[22] However, the findings in Panel B suggest that these effects (particularly for mental health) are concentrated in the Cash & gPM+ arm.

This pattern is surprising given that the cash transfer had not yet been disbursed at the point of the short-term follow-up survey, and we interpret this primarily as suggestive of potential unblinding with respect to treatment status: if some households in the Cash & gPM+ arm were aware that they would be receiving cash while those in the gPM+ only arm were aware of their non-receipt status, this could have shifted their mental health outcomes. It is reasonable to hypothesize that this knowledge could lead to improved mental health for those knowing they would soon receive cash, and conversely worse mental health for non-recipients; evidence from a process evaluation found that gPM+ participants expected or hoped for in-kind support.[23]

Given this evidence of potential un-blinding, evidence in the short-term follow-up is challenging to interpret. Accordingly, we present these results with substantial caveats and regard them as secondary to the evidence from the longer-term follow-up survey.

5.6. Other outcomes and deviations from pre-analysis plan

In addition to the outcomes mentioned above, in our pre-analysis plan we specified analyzing time spent on non-income generating activities. However, we realized that we could not create an index for time use across all activities, as its mechanically impossible for it to increase across all. Thus we have concentrated on time use spent on income-generating activities in the main specifications, however, Appendix Table D12 presents the results for the other time use indicators and reveals no impact on any indicator across any arm.

[22] Following the pre-analysis plan, we restrict the outcome domains to mental health, psychosocial and childcare outcomes, as we did not expect any effects of gPM+ on economic outcomes in the short-term.

[23] We also explored the hypothesis that there was imbalance in exposure to other interventions or imbalance in exposure to conflict; we largely find this is not the case for the former hypothesis. There is some evidence that households in the cash arms were exposed to more conflict in the baseline and first follow-up survey, but this gap disappears in the second follow-up survey; and this pattern would not plausibly be consistent with enhanced mental health in the cash arms given that we generally find evidence of adverse effects of conflict on mental health.

We also pre-specified analysis of IPV and preferences as secondary outcomes (see Appendix B1 for details on their construction).[24] They were not primary outcomes, in part, because we only collected this information from female respondents and not male respondents, thus reducing the sample by half. Moreover, both these outcomes were part of a survey experiment; details on the experiment can be found in (Anderberg et al., 2025). Appendix Table D13 presents the IPV results and reveals that there are no impacts on IPV across any arm. Appendix Table D14 presents the preferences results and reveals that the Cash & gPM+ arm increases patience as measured by respondents' self-assessment regarding their willingness to wait (column 1).

Lastly, we pre-specified assessing heterogeneity by the sex of the participant and by baseline depression (in addition to region). Given the focus of the paper on conflict, we decided not to make this the main part of the paper, but results indicate limited heterogeneity by sex of the participant and baseline depression as measured by the PHQ-9 score. The exceptions are that gPM+ leads to significantly higher psychosocial outcomes for women compared to men; and that Cash & gPM+ leads to significantly larger impacts on mental health outcomes for respondents with more severe baseline symptoms of depression compared to those with less severe symptoms (results available upon request).

6. Conclusion

We report on the findings of a trial assessing the effectiveness of a group therapy intervention and a one-time lump sum cash transfer delivered to extremely poor households during a period of ongoing armed conflict in rural Ethiopia. We find that in the longer term, the conjunction of both cash and therapy leads to enhanced psychosocial, time use, and economic outcomes, while cash alone shifts only time use and economic outcomes, and therapy alone has no persistent positive effects (and a negative impact on time use). Conflict moderates these impacts, especially for the joint cash and therapy arm where positive impacts on mental health and economic outcomes are concentrated among households with no exposure to conflict; conflict attenuates these positive impacts such that they are smaller or null for a large share of the sample that is highly exposed to conflict.

Our finding that gPM+ is not effective at improving mental health outcomes is contrary to much of the literature that finds positive impacts, even among conflict affected populations. In a meta-analysis on gPM+, Schafer and colleagues (2023) find small to medium favorable impacts on distress and mental health. However, all but one of the studies included in the meta-analysis had a follow-up period of 6 months or less. The only study with a follow-up period of 12 months, is a study among Syrian refugees in Jordan that found that initial favorable impacts from a 3-month follow-up had faded by 12 months (Bryant et al., 2022a). One possible explanation given is that the effectiveness of gPM+ may wane in a context of on-going stressors. Our findings are consistent with this explanation, in that our longer-term findings show that impacts on mental health persist in areas without conflict but not in areas with on-going conflict which presumably have more ongoing stressors.

Our findings that cash alone does not lead to meaningful shifts in mental health is also distinct from other recent work around cash transfers and mental health that find positive impacts (McGuire et al., 2022; Ridley et al., 2020). It should be noted, however, that in areas with no conflict, we find positive impacts of cash on stress and post-traumatic stress. Thus, our findings in non-conflict areas are consistent with the rest of the literature and additionally show that cash may be more effective at improving some dimensions of mental health or emotional wellbeing than others.

Our findings have several implications for program design and future research. First, our finding that neither gPM+ nor cash alone lead to sustained effects on mental health implies that a more intensive intervention model may be needed for sustained effects in this dimension. This could entail either more therapy sessions over a longer period or using multifaceted interventions such as those that combine psychological interventions with cash. However, even this combined intervention was not effective in conflict-affected areas. Here, a more symptom-specific intervention like (IPT-G targeting depression) that targets people suffering the most from that symptom might be more effective. Not only would the treatment be more tailored to participants' needs, but also by targeting more severe depression, the intervention would catch those that are experiencing a more persistent form of depression, leading to less spontaneous remediation in households not targeted.

Second, while we do not explore the moderating impacts of group dynamics, it could be that participant's mental health could have been affected by the group's dynamics, either positively or negatively. Groups where participants are more supportive of each other may enhance the effectiveness of gPM+. A participant's mental health may also be affected by the emotional state or engagement of others in the group. Groups that include peers with more severe distress may dilute the intervention's benefits for some, and this may be more salient in conflict settings. While we do not investigate how group dynamics moderate the impacts on mental health, we believe this is a promising direction for future research.

Lastly, our findings suggest that recurring conflict attenuates any positive effects of the more promising joint intervention in the area of mental health (though some, attenuated positive economic effects remain), either because the acute stress and risk associated with violence makes it hard to absorb or utilize the techniques imparted via gPM+ or any potential short-term gains are destroyed by repeated economic setbacks and trauma. With protracted conflict on the rise, identifying new innovative strategies to support affected populations (including, potentially, other types of psychological support more narrowly focused on managing ongoing trauma) and effectively deliver services (such as support using mobile technology if in-person support is not an option) is urgent.

CRediT authorship contribution statement

Melissa Hidrobo: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Conceptualization. **Harold Alderman:** Writing – review & editing, Conceptualization. **Negussie Deyessa:** Writing – review & editing, Investigation, Conceptualization. **Daniel O. Gilligan:** Writing – review & editing, Project administration, Conceptualization. **Parthu Kalva:** Writing – review & editing, Formal analysis, Data curation, Conceptualization. **Jessica Leight:** Writing – original draft, Methodology, Investigation, Conceptualization. **Michael Mulford:** Writing – review & editing, Project administration, Investigation, Conceptualization. **Heleene Tambet:** Writing – review & editing, Formal analysis, Data curation.

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[24] Initially value of investments was also listed as secondary outcomes with preferences in the pre-analysis plan, but upon further consideration we believe its not capturing the same construct as preferences, and moreover captures similar information as the value of assets, so we have dropped this variable from analysis.

Appendix A. Supplementary data

Supplementary material to this article can be found online at https://doi.org/10.1016/j.jdeveco.2026.103724.

Data availability

Data is available at Harvard Dataverse

Screening data: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/MMA9XB Baseline data: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/8JFUAA Follow-up 1 data: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/ZPFK7E Follow-up 2 data: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/AVZSE3

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