# The Power of Narratives in Transforming Ex-Combatants into Agents of Peace: Evidence from Somalia[*]

Jun Goto [†]

GRIPS

Tomohiro Hara[‡]

Musashi University

Yosuke Nagai[§]

University of Oxford

Shunsuke Tsuda[¶]

University of Essex

February 21, 2026

## Abstract

Amid ongoing conflict, policymakers face the challenge of reintegrating former members of extremist organizations through individual-level incentives. We evaluate a narrative-based intervention that reframes ex-combatants as "agents of peace," targeting nearly all recent defectors from Al-Shabaab in Somalia. Treated individuals exhibit weaker attachment to Al-Shabaab and a greater shift from transactional to intrinsic prosocial motives. Text analysis of open-ended responses and stated goals reveal more specific, peace-oriented, anti-Al-Shabaab, and prosocial language. However, conservative religious views persist, highlighting the coexistence of organizational disengagement, a peacebuilder identity, and ideological commitments. These findings underscore the potential for low-cost, non-material interventions to promote peacebuilding.

**Keywords**: Peacebuilding, Reintegration, Extremism, Islam, Violence
**JEL codes**: D74, N47, O15, Z12

# 1   Introduction

Civil wars disrupt millions of lives and impose severe social and economic costs (Blattman and Miguel 2010). While peace agreements are often effective in resolving conventional conflicts (Rohner 2024; Rohner et al. 2025), civil wars, particularly those involving extremist organizations, increasingly persist and are less responsive to negotiated settlements. In such contexts, one viable route to peace is through changing individual-level incentives of combatants, and rehabilitation programs are often tasked with enabling ex-combatants to reintegrate into civil society. The objective is not merely to disarm individuals, but to de-radicalize and psychologically repurpose ex-combatants while discouraging re-engagement with extremist groups. Successful reintegration can also generate indirect benefits, such as encouraging more defections and weakening armed organizations from within. This emerging approach contrasts with traditional Disarmament, Demobilization, and Reintegration (DDR) models, which typically focus on facilitating the return of ex-combatants to civilian life through material support and capacity building in post-conflict settings (Humphreys and Weinstein 2007). In today's fragmented, transnational conflicts, especially those involving Islamist movements (Kalyvas and Naghizadeh 2025), such conventional schemes are often infeasible. Policy interventions must instead operate amid ongoing violence, address deep ideological commitment, and function without centralized bargaining counterparts.[1]

In this paper, we investigate whether a low-cost, psychological nudge—specifically, a narrative intervention—can enhance existing rehabilitation efforts and alter the trajectory of highly vulnerable ex-combatants. The existing literature on rehabilitation often emphasizes vocational training and economic incentives. While economic factors are undoubtedly important drivers of recruitment, we hypothesize that successful reintegration requires changes in how individuals perceive their social roles and future trajectories. Building on the UN's "Youth, Peace, and Security" agenda, which positions youths as critical stakeholders in peacebuilding, we extend this framework to former combatants, proposing that reframing them as "agents of peace" can mitigate extremist tendencies and foster prosocial attitudes.[2]

We focus on defectors from an Islamic extremist organization Al-Shabaab, which remains a potent jihadist force responsible for the highest volume of recent fatalities in Africa. For defectors leaving this group, the path to reintegration is fraught with peril. Beyond the physical threat of retaliation from their former comrades, defectors face profound societal stigmatization, limited employable skills, and severe psychological trauma (Gelot and Khadka 2025; Nagai 2021; Taylor et al. 2019). While voluntary defection implies a break from the group, these severe obstacles create a precarious environment where the inability to find a new social role may still generate risks of recidivism or "re-recruitment."[3]

---

[1]Such programs, implemented during ongoing conflicts, are often referred to as "third-generation DDR." These initiatives have attracted increasing attention from practitioners, standing in contrast to conventional first- and second-generation DDR programs that take place in post-conflict settings following a peace agreement. See, for example, Cockayne and O'Neil, eds (2015). Recent qualitative study by Glazzard (2023) underscores the distinct challenges of disengaging and reintegrating violent extremists in settings of ongoing conflict, where fragile security environments and stigmatization may limit program effectiveness and shape outcomes.

[2]See Nagai (2026) for a practitioner-oriented discussion of how recent disengagement and reintegration efforts relate to the Youth, Peace, and Security agenda.

[3]Confidential informal interview with the center director of the Mogadishu Rehabilitation Center, conducted on October 2, 2025, suggests that a subset of defectors has indeed returned to the group or engaged in criminal activities after release.

Surveying current or former members of active extremist groups are therefore critical for understanding conflict and peacebuilding at the micro level, yet such populations are rarely accessible due to political and security constraints. Our collaboration with Accept International, an NGO with over a decade of experience reintegrating radicalized youth in Somalia, enabled us to overcome this hurdle. To our knowledge, this paper is the first economics study to directly engage this otherwise inaccessible population with a randomized policy intervention.

Specifically, we conduct a randomized controlled trial in four rehabilitation centers in Somalia, involving 246 individuals who voluntarily disengaged from Al-Shabaab, almost the universe of Al-Shabaab defectors in rehabilitation centers in the entire Somalia as of January 2025. All participants take part in an eight-session rehabilitation program over two months. The control group receives a standard curriculum focused on personal reflection, goal setting, and social reintegration. The treatment group receives an otherwise identical program that is augmented by repeated *peacebuilder narratives*. These narratives emphasize the participants' potential to become active agents of peace who contribute to societal stability and serve as role models within their communities, rather than passively reintegrating into a peace others have made and focusing solely on generic personal goals.[4] Cultivating a self-perception as an "agent of peace" is particularly crucial in active conflict zones like Somalia, where a stable civil society does not yet exist for defectors to simply "join." The intervention is also low-cost and scalable, relying on reframing and narrative-based messaging rather than material incentives.

As our intervention frames reintegration through the lens of peacebuilding, we measure main outcomes along three dimensions that theoretically stem from this new self-concept. First, since peacebuilding inherently requires distancing from violent extremist organizations, we assess attachment to Al-Shabaab and attitudes toward violence and religious extremism. Second and third, we examine prosocial attitudes and forward-looking engagement, core components of the rehabilitation program experienced by both groups but potentially internalized differently under the peacebuilding narrative treatment. By explicitly promoting a peace-oriented societal role, the narrative intervention may shape how participants engage with communities, and thus its effects may extend to prosocial attitudes. Therefore, we measure willingness to contribute to society and reliance on financial incentives for doing so. Similarly, by situating reintegration within a peacebuilding framework, the intervention may influence how individuals envision their future livelihoods and allocate effort toward attainable goals. To capture this, we collect measures of economic expectations and concrete effort taking toward reintegration in a structured goal setting exercise.

Sensitive attitudes and behaviors such as willingness to rejoin Al-Shabaab are well known to be prone to social desirability bias in survey responses (Bursztyn et al. 2025). To mitigate this concern, we do not rely on closed-ended items alone, but complement conventional survey outcomes with text-as-data measures from open-ended responses and stated goals. Using sentence embeddings, we quantify alignment with peacebuilding language and response specificity, allowing us to assess whether treatment patterns are consistent across measurement modes rather than driven by a single elicitation format.

There are three main findings. First, the intervention reveals a nuanced contrast between organizational

---

[4]Our narrative-based approach shares a broadly aligned conceptual foundation with the school-based intervention by Alan and Kubilay (2025), where assigning a leadership role ("student-teacher") serves as a catalyst for behavioral change, motivating participants to autonomously improve their social environment.

disengagement and broader ideological change: while it weakened identity attachment to Al-Shabaab, some conservative religious beliefs persisted or even strengthened. Treated participants are significantly less willing to rejoin Al-Shabaab, even under financial inducement, and are less likely to justify its existence. However, they simultaneously expressed stronger agreement with certain coercive or exclusionary religious views, such as justifying forced conversion or avoiding interaction with non-Muslims. These patterns indicate that the intervention effectively reduced institutional loyalty to the armed group, but did not uniformly moderate extreme ideological beliefs. Instead, some individuals may have reinterpreted the peacebuilding message through a strict moral or religious lens.

Second, the intervention significantly reduced participants' reliance on transactional motivations for civic behavior, along with more realistic economic expectations. Treated individuals are less likely to expect financial rewards for societal contributions compared to the control group. This pattern suggests a shift away from material incentives and toward more intrinsic motivations for reintegration and prosocial engagement. Though statistically insignificant, treated participants also consistently report lower expected income. These findings are especially notable given that the participants—defectors in an active conflict zone—had previously been motivated by strong instrumental incentives linked to group membership.[5]

Finally, text analysis of open-ended responses and stated goals reveals three notable patterns that augment findings from the survey-based outcomes. First, treated individuals are significantly more likely to use language associated with peace and future orientation with higher specificity, when asked to reflect on their role in society and the path forward. Second, treated participants show stronger preferences for distancing themselves from Al-Shabaab. This result is consistent with the observed effects on survey-based measures of attitudes toward the organization, indicating the minimal degree of social desirability bias and strategic response of anti-Al-Shabaab answers. Third, treated individuals are relatively more likely to report prosocial goals with other- or community-oriented priorities rather than goals focused on self interests. Together, these shifts in tone and content point to the adoption of a constructive self-concept aligned with the peacebuilder identity. By capturing spontaneous expression, the text analysis complements the survey findings, demonstrating that the narrative intervention shapes both internal beliefs and outward framing toward reintegration and peacebuilding.

**Related literature.** This paper contributes to two strands of literature. The first is the empirical literature on conflict resolution and reintegration. This paper makes two major contributions to this literature. First, while most existing empirical studies examine ex-combatants who have already returned to their communities or civilian life in post-conflict settings (e.g., Blattman and Annan 2016; Bauer et al. 2017; Gilligan et al. 2013), our study overcomes significant selection issues by observing the near-universe of defectors within rehabilitation centers *before* their release. By capturing this initial stage of the transition with a randomized evaluation, we provide rare evidence on the reintegration process during an active insurgency—filling a gap left even by exceptional recent work surveying former Islamist group members in situ (Gelot and Khadka 2025; Khalil et al. 2019). Second, whereas most prior studies focus

---

[5]Notably, descriptive statistics from the baseline survey show that the majority of defectors joined Al-Shabaab *voluntarily* and received monetary rewards that were substantially higher than their reported earnings prior to joining.

on economic reintegration, typically through vocational training or cash transfers that aim to increase the opportunity cost of violence, our intervention targets self-perception as a distinct and understudied mechanism for influencing reintegration outcomes. Prior studies have found that such economic programs often produce limited effects on prosocial attitudes, highlighting the need for approaches that engage the social and psychological dimensions of reintegration.[6] A notable exception is Blattman et al. (2017), who show that combining cognitive behavioral therapy with cash assistance can reduce crime and violence among high-risk men in Liberia, with suggestive shifts in anticriminal/antiviolent identity and values. We build on this tradition by introducing a narrative-based intervention that frames former fighters not as passive recipients of peace that others have built, but as active agents in sustaining it—a framing that resonates with the realities of an ongoing insurgency.[7]

Relatedly, we study a population that is policy-relevant but underexamined in the economics of conflict by observing individuals who previously belonged to Al-Shabaab, an Islamic extremist organization. While a few recent studies have begun to explore who joins such groups (e.g., Brockmeyer et al. 2022), prior research on ex-combatant reintegration often has limited access to former members of groups in which organizational and ideological attachments may be salient, especially while conflict persists. Observing defectors in rehabilitation centers therefore provides rare evidence on early reintegration trajectories and on how participants describe their relationship to the organization and their role in society. This focus is important, as persistent ideological commitment would matter for Islamist violence (Kubo and Tsuda 2025) and perceptions of such latent ideology also shape community acceptance and local security concerns (Blair et al. 2021; Gelot and Khadka 2025).

Second, this study contributes methodologically to the literature that uses natural language processing (NLP) and text-as-data techniques to capture psychological and ideological change in conflict-affected populations. Building on advances in computational text analysis in economics and political science (Ash and Hansen 2023; Gentzkow et al. 2019), we complement standard survey data with open-ended narratives and a transparent embedding-based "reference text" approach to measure how participants express their motivations, group attachments, and envisioned roles in society. This approach aligns with recent efforts to track how exposure to violence alters individuals' expressions and sentiments, for instance, by analyzing extremist rhetoric on social media following episodes of anti-Muslim hostility (Mitts 2019), or by tracing shifts in public discourse after exposure to conflict-related narratives (e.g., Esposito et al. 2023). By quantifying spontaneous discourse surrounding peace, extremist attachments, and the future, our approach offers new tools for evaluating reintegration outcomes that are otherwise difficult to observe.

---

[6]For example, Gilligan et al. (2013) find no measurable improvements in ex-combatants' attitudes toward peace or political reconciliation despite income benefits. Blattman and Annan (2016) also demonstrate that while capital grants reduce illicit activities among Liberian ex-combatants, they had little effects on peer networks, social integration, and attitudes toward violence or democracy.

[7]Therefore, we also add empirical evidence to the growing literature on how narratives and role-based framing shape preferences and behavior (e.g., Shiller 2020) and, more broadly, to economics research on endogenous belief and value formation (Shayo 2009; Akerlof 2017; Atkin et al. 2021; Ghosal et al. 2022).

# 2 Institutional Setting and Experimental Design

## 2.1 Context: Defector Rehabilitation Centers for Former Al-Shabaab Combatants in Somalia

Somalia has experienced prolonged armed conflict in which non-state armed groups continue to operate despite the absence of a comprehensive peace settlement. Al-Shabaab, an Islamist militant organization affiliated with Al-Qaeda, remains active across large parts of Somalia and has also carried out major attacks in neighboring countries, including Kenya, Uganda, and Djibouti. With an estimated fighting force of 5,000–14,000 members, the group combines insurgent operations, ideological indoctrination, local governance, and transnational media outreach in its quest to overthrow the Somali government and establish an Islamic emirate under a strict Salafi interpretation of Shariah law (e.g., Australian National Security n.d.; Mapping Militants Project n.d.). It has been responsible for the highest number of conflict-related fatalities on the African continent over the past decade.[8]

Individuals who disengage from Al-Shabaab typically enter government-administered defector rehabilitation centers. These centers provide a structured environment combining religious instruction, psychological counseling, basic education, and vocational training. Participation is voluntary, but most individuals who defect from the group are expected to enroll. Upon completion, participants are released from rehabilitation centers and reenter society—either as civilians, or, in some cases, through roles in state security institutions—often facing stigma, security threats, and limited economic opportunities.

Our study is conducted in four rehabilitation centers located in Mogadishu, Baidoa, Kismayo, and Dhusamareb in collaboration with the NGO Accept International and the Tubsan National Center for Preventing and Countering Violent Extremism of the Federal Republic of Somalia. These centers serve individuals who voluntarily disengaged from Al-Shabaab and are awaiting reintegration into civilian society. The total sample consists of 246 participants, reflecting near-universe of Al-Shabaab defectors in Somalia as of January 2025. Table A.1 summarizes the study sample and Figure A.1 depicts the scene of rehabilitation programs in the four rehabilitation centers.

## 2.2 Experimental Design

The intervention consists of an eight-session rehabilitation program delivered over two months, with one 45-minute session per week. All participants receive a core curriculum focused on reflection, motivation, goal setting, and social reintegration. The experimental variation lies exclusively in the narrative framing embedded in the sessions.

Participants are randomly assigned, within each rehabilitation center, to one of two groups. The control group (C) receives the standard rehabilitation curriculum, emphasizing personal aspects for social reinte-

---

[8]According to authors' calculation using the Armed Conflict Location and Event Data (ACLED), Al-Shabaab was involved in approximately 13% of all conflict and violent events attributed to non-state rebels and militias between 2015 and 2024. These events accounted for 45,683 fatalities—the highest attributed to any single group in Africa during this period, followed by another Islamist militant group in West Africa.

Table 1: Summary of the Randomized Intervention

| | Group 1<br>Rehabilitation Program | Group 2<br>Rehabilitation Program + Peacebuilder Narratives |
|---|---|---|
| Week 1 | Discussions regarding the importance of reflecting on the past experiences | Discussions regarding the importance of reflecting on the past experiences with emphasise on recognizing past experiences as a foundation for becoming an agent of peace |
| Week 2 | Creating vision boards solely focusing on personal goals | Creating vision boards focused on their future as agents of peace, incorporating their aspirations for contributing to society |
| Week 3 | Discussions on motivation and self-confidence in general | Discussions on motivation and self-confidence, highlighting the importance in relation to becoming agents of peace |
| Week 4 | Learning goal setting and planning | Learning goal setting and planning with focuses on setting concrete goals as agents of peace and developing actionable plans to achieve them |
| Week 5 | Discussing about social contribution after leaving the rehabilitation center in a broader sense | Discussing about social contribution after leaving the rehabilitation center, highlighting the role of altruistic actions and how agents of peace can positively impact society, encouraging participants to identify ways they can contribute |
| Week 6 | Introduces role models who have succeeded in various fields that does not relate to peacebuilding activities | Introducing successful former combatants as agents of peace and discusses the importance of participants becoming role models themselves |
| Week 7 | Discussing how to interact with others to make positive relationship with diverse groups | Discussing how to interact with others to make positive relationship with diverse groups and how agents of peace can foster mutual understanding |
| Week 8 | Reflecting the program in general to develops action plans | Reflecting the program in general to develops action plans focusing on their roles as agents of peace |

gration, such as personal aspirations and self-confidence, without reference to peacebuilding roles. The treatment group (T) receives the same curriculum, but with repeated narrative content framing participants as potential agents of peace who can actively contribute to reconciliation and social cohesion. Table 1 summarizes the contents of the weekly sessions.[9]

The narrative framing is integrated throughout the program rather than delivered as a standalone message. For example, during sessions on goal setting in Week 2, treatment participants are encouraged to define goals related to contributing to peace and community rebuilding, whereas control participants focus on personal goals. Similarly, in Week 6, role models introduced in the treatment group are former combatants successfully reintegrated into society as agents of peace, while the control group is exposed to successful individuals in unrelated fields.[10] Appendix B details the program contents for all sessions.

---

[9]Prior to each session, instructors jointly review the curriculum and are repeatedly reminded of their assigned treatment to minimize the risk of protocol deviations.

[10]Examples of agents of peace featured in the intervention include former child soldiers who have reflected on their past involvement in violence and embraced public roles promoting reconciliation. *Ishmael Beah*, who fought as a child soldier in Sierra Leone, became a best-selling author (A Long Way Gone) and now serves as a UN advocate for children affected by war. *Emmanuel Jal*, a former child combatant in South Sudan, turned to music and peace activism, founding a local NGO and using his platform to speak honestly about trauma, healing, and the moral imperative to prevent cycles of violence. Both figures

## 2.3 Data Collection and Baseline Characteristics

We conduct one baseline survey prior to the implementation of the randomized intervention, eight very short follow-ups immediately after each session, and two follow-up surveys after the completion of the entire intervention. The baseline survey was conducted in January 2025, and the interventions began in mid-to-late January. The post-intervention follow-up surveys were conducted one week and one month after the conclusion of the intervention, that is, after all eight sessions.

**Summary Statistics and Balance Tests of Baseline Characteristics**

Table A.2 presents summary statistics and balance tests of baseline characteristics of Al-Shabaab defectors. Baseline characteristics—including education, literacy, economic conditions, duration of involvement with Al-Shabaab, and trust toward various agents—are largely balanced across treatment and control groups, suggesting successful randomization.[11]

We begin by summarizing the demographic and economic characteristics of participants prior to joining Al-Shabaab. The sample consists predominantly of young men, with an average age in the mid-twenties. Educational attainment is low—most respondents dropped out before completing primary school—and the majority reported monthly incomes below $50 prior to joining. Most originate from rural agricultural areas and had access to land or livestock. Around 40% of participants reported experiencing episodes in which there was no food of any kind in the household due to a lack of resources.

Notably, we also collected novel information on how participants joined and operated within Al-Shabaab. About 70% of participants, reported receiving regular monetary compensation from the group, averaging approximately $80 per month—substantially higher than their reported pre-joining earnings. Strikingly, the largest share of participants indicated that they joined Al-Shabaab *voluntarily*, followed by those who joined through an invitation. This is notable given that our sample consists of individuals who later voluntarily defected, in contrary to the expectation that most would have been forced, coerced, abducted, or threatened into joining. However, informal interviews suggest that many later came to feel deceived by the organization, expressing a clear sense of disillusionment. Several described a disconnect between the promises made during recruitment and the actual practices and objectives of the group.

---

openly acknowledge their pasts and emphasize transformation through accountability and purposeful action.

[11]From baseline to endline, the number of observations declines by approximately 20%, from 246 to 196. According to implementation partners, most attrition is due to participant release. While release decisions may be non-random—for instance, authorities may prioritize individuals deemed lower risk, and such assessments could, in principle, be influenced by treatment assignment—our data show no systematic relationship between attrition and treatment status. Table A.3 shows that baseline characteristics remain well balanced between treatment and control groups among participants who completed the endline survey.

# 3 Empirical Strategy

**Empirical Specification**

As a benchmark econometric specification, we estimate the effects of the narrative-based intervention using the following ordinary least squares (OLS):

$$y_{ic} \;=\; \alpha_0 + \alpha_1 Treat_{ic} + \mu_c + \varepsilon_{ic}, \tag{1}$$

where $y_{ic}$ denotes an outcome for individual $i$ in rehabilitation center $c$, $Treat_{ic}$ is the treatment indicator, $\alpha_1$ is the coefficient of interest, $\mu_c$ represents rehabilitation center fixed effects, and $\varepsilon_{ic}$ is an error term. Robust standard errors are reported. For standard survey-based outcomes, we also implement multiple hypothesis tests and report the Romano-Wolf $p$-value (Romano and Wolf 2005a,b).

**Standard Survey-Based Outcomes**

The primary outcomes variables measure key pre-conditions for reintegration, falling into three categories: ideological outcomes, prosocial attitudes, and economic outcomes. Ideological outcomes include attitudes and preferences for violence and extreme Islamic ideologies, as well as support for Al-Shabaab. Prosocial attitudes include attitudes and preferences for reintegration and prosocial behaviors as well as the self-perception as an agent of peace. These two categories of outcomes are elicited using Likert-scale questions commonly employed in studies of reintegration and political violence.

Finally, we measure economic outcomes through expected future income and a behavioral proxy for effort-taking. The latter is assessed via a goal-setting exercise. Participants fill in a Mandala chart (Figure A.2) designed to help them visually articulate how they plan to achieve their first main goal: reintegration into society.[12] They are asked to define up to eight sub-goals they consider necessary for achieving this objective, and for each sub-goal, to specify up to eight corresponding smaller goals. There is no time limit, and participants are free to stop the exercise at any point. As a result, both the quantity and quality of their written goals serve as a revealed measure of individual effort and future-oriented planning.

**Natural Language Processing (NLP) Analysis Methodology**

Likert-scale survey questions capture what participants *say* they believe, but may be subject to social desirability bias—respondents may provide answers they perceive as "correct" rather than their true attitudes. To complement these measures, we analyze open-ended survey responses using Natural Language Processing (NLP) methods. This approach examines *how* participants express their intentions, focusing on the linguistic quality and specificity of their responses rather than simple agreement or disagreement. More broadly, recent work has used text-as-data methods to measure otherwise hard-to-observe attitudes from written records (e.g., Ash et al. 2024).

---

[12]During the survey, enumerators also offered a simplified phrasing ("becoming a member of society") to aid participant understanding.

We employ sentence embeddings to measure semantic similarity between participant responses and reference texts. Sentence embeddings are a machine learning technique that converts text into numerical vectors (lists of numbers) in a high-dimensional space. The key property is that sentences with similar meanings are mapped to nearby points in this space, while sentences with different meanings are mapped to distant points. For example, "I want to help my community" and "I will support my neighbors" would be represented by similar vectors, even though they use different words.

We map each response into a semantic vector space, where responses with similar meaning are located closer even when they use different words. We use the pre-trained all-MiniLM-L6-v2 sentence-embedding model.[13] We then compare responses with reference texts using cosine similarity. Cosine similarity ranges from $-1$ (opposite meaning) to $+1$ (identical meaning), with values near $0$ indicating unrelated content.

**Text-Based Outcomes**

Using the NLP analysis, we measure the following text-based outcomes.

**Peacebuilding and similarity measures.** We construct three outcome measures based on semantic similarity to carefully selected reference texts:

1. *Peacebuilder similarity*: We define eight reference sentences representing peacebuilding intentions (e.g., "I want to build peace and help my community heal from conflict," "I will work for reconciliation and unity among different groups"). For each response, we compute its cosine similarity to the average of these reference embeddings. Higher scores indicate language more aligned with peacebuilding concepts.

2. *Specificity score*: This measure captures whether responses contain concrete, action-oriented language versus vague, abstract statements. We define two sets of reference texts: (i) *Specific references* (10 sentences) containing concrete statements with specific actions, locations, or plans; and (ii) *Vague references* (20 sentences) consisting of abstract statements without specific content. See Appendix D for these reference sentences. The Specificity Score is computed as the difference: (similarity to specific references) $-$ (similarity to vague references). Positive (negative) scores indicate more concrete (vague) language.

3. *Combined (Multiplicative)*: The product of Peacebuilder Similarity and Specificity Score. This measure captures responses that are *both* peacebuilding-oriented *and* expressed with specificity. A high combined score requires both components to be high; if either is low, the product is low.

Each of these outcomes is averaged across four survey questions: two questions intend to capture participants' behavioral intentions ("Have you taken any new action?" and "Do you wish to have any new action?"), a question regarding understanding of peacebuilding ("What are the most important elements in building sustainable peace?"), and a question on personal aspirations ("How would you like to improve your future?").

**Al-Shabaab leave-affirmation measure.** We additionally analyze responses to a question asking what message the respondent would send as an anonymous message to an individual who currently belongs to

---

[13]all-MiniLM-L6-v2 is a pre-trained sentence-embedding model distributed through the Sentence-Transformers library and built on a MiniLM backbone. It is widely used for semantic textual similarity tasks. The model maps each input sentence to a fixed-length 384-dimensional dense vector; 384 is the output dimension determined by the model architecture. See `https://huggingface.co/sentence-transformers/all-MiniLM-L6-v2` and Reimers and Gurevych (2019).

Al-Shabaab.[14] We construct two related outcomes from this question. First, *Explicit "Leave AS" Mention* is a dictionary-based binary indicator that equals one if the response contains explicit leave/quit/defect language (e.g., "leave," "quit," "defect") and zero otherwise; responses coded as "no message" are coded as zero. Second, *Leave-AS Affirmation Score* is a weakly supervised embedding-based score. We embed each response from this question using the same sentence-embedding model and fit a logistic regression classifier to predict the dictionary-based label using responses only from this question. The predicted probability from this model is used as a continuous outcome in $[0, 1]$. By construction, higher values of both measures correspond to language that more strongly affirms leaving Al-Shabaab.

**Goal-setting orientation measure.** In the goal-setting exercise, participants complete a Mandala chart by listing up to eight sub-goals they view as necessary for reintegration into society. We hypothesize that the social reintegration requires improvement in the relationship with others in a returned community. Therefore, we classify each sub-goal as *self-regarding* (e.g., terms related to income, work, skills, family, and personal well-being) and/or *other-regarding* (e.g., terms related to community, helping others, peacebuilding, and cooperation) based on pre-specified lexicons, and apply dictionary-based measure to capture whether participants consider relationships with others when considering the broad goal of social reintegration.[15] For each respondent, we compute the share of sub-goals classified as other-regarding and the share classified as self-regarding; our primary outcome, *Other vs. Self-regarding Tendency (Goal Settings)*, is defined as the difference between these shares (other minus self), so higher values indicate a greater other-regarding orientation in goal setting.[16]

# 4    Empirical Results

We first present treatment effects on survey-based outcomes, followed by those on text-based outcomes.

## 4.1    Standard Survey-Based Outcomes

Table 2 reports the main results. We focus on outcomes measured at the final endline survey one month after the intervention.[17][18] Unless otherwise noted, all analyses are pre-specified in the pre-analysis plan.

---

[14]This question is asked solely for research purposes, and the collected messages are not shared with combatants.

[15]Dictionary-based text measures are widely used in text-as-data research (e.g., Gentzkow et al. 2019; Tausczik and Pennebaker 2010) and connect to classic distinctions between agency/self-focus and communion/other-focus (Abele and Wojciszke 2007).

[16]By differencing the two measures, we net out individual-level tendencies that are common across indicators. Although we present the results using self- and other-regarding tendencies separately in the appendix, our preferred specification uses their difference as the primary outcome.

[17]In contrast, we interpret the results from the short-term follow-up survey, conducted one week after the program, with greater caution due to its proximity to the intervention. Responses may be more susceptible to social desirability bias or reflect instantaneous rather than persistent changes in attitudes. Table A.4 presents the results. The findings are indeed broadly consistent with the endline outcomes, particularly in attitudes toward Islamic and violent extremism. However, certain effects on prosocial attitudes observed at the one-week mark do not persist in the final endline survey conducted one month later.

[18]Supplementary analysis from brief weekly post-session follow-up surveys, reported in Appendix C, suggest that the treatment effects on the main outcomes reported in this section are not due to differential understanding of session content, but rather reflect how participants internalized and responded to the material.

**Attitudes toward Al-Shabaab, Extremism, and Violence**

Panel (A) reveals a nuanced contrast between organizational disengagement and broader ideological change. First, the narrative intervention clearly weakens attachment to the armed group itself, which is one of the primary objectives of rehabilitation programs. Treated participants are 17.9 percentage points less likely to express willingness to rejoin Al-Shabaab conditional on rewards (column 1), relative to a control mean of 27.5%—a decline of over 65%. They are also 14.7 percentage points less likely to justify the existence of Al-Shabaab as stabilizing local communities. In column (2), we find treated participants allocate USD 0.87 less (out of 10) to a hypothetical policy supporting defectors relative to child health spending. While this result may appear paradoxical, it might be consistent with the interpretation of moral distancing from current members of Al-Shabaab or skepticism toward incentivized defection. This result may also simply be consistent with their prosocial attitudes to contribute to improving child health in the peacebuilding process. All these results are statistically significant under both robust standard errors and Romano-Wolf multiple hypothesis testing corrections.

Second, some indicators of religious and violent extremism increase with the intervention. Treated participants are significantly more likely to justify forced religious conversion (column 6), and are less likely to agree that problems can be solved without violence (column 7). They are also more likely to avoid interaction with non-Muslims (column 4), but its statistical significance is not robust to the Romano-Wolf correction. Though the direction of effects are consistent with other indicators, we find no significant effects on willingness to interact with foreigners (column 5) or on the belief that fighting is the only form of jihad (column 8). Taken together, these results suggest that disengagement from Al-Shabaab does not imply uniform ideological moderation. Participants may reject the organization while maintaining, or even reinforcing, some underlying beliefs.

This pattern highlights an important distinction between organizational disengagement and ideological transformation. The peacebuilder narrative appears effective in reducing support for Al-Shabaab as an institution, but it does not uniformly liberalize religious or moral views. A plausible interpretation is that participants reinterpret peacebuilding through a religious lens, viewing coercive practices as partly compatible with community protection especially under conflict environment like Somalia.

Table A.5 further supports this interpretation by presenting heterogeneity analysis based on whether participants graduated from Madrasa Qur'anic schools, a proxy for higher religious education. The interaction terms show that treated individuals with such religious education are more likely to express views consistent with coercive or rigid interpretations of Islam. This pattern supports the interpretation that some participants, especially those with greater religious training, may internalize the peacebuilder narrative through a strict moral framework, holding and articulating such views more confidently when motivated toward peacebuilding.[19]

---

[19]Table A.6–A.12 also report heterogeneous treatment effects along other dimensions (years of education, literacy in Arabic and Somali, duration of time spent in Al-Shabaab, and the mode of entry into the group), but we do not find noteworthy patterns.

## Prosocial Attitudes

Panel (B) examines how the peacebuilder narrative affects perceived social roles and motivations. Treatment effects on perceived concrete roles within the family or society (columns 1–2) and willingness to help others (column 3) are small and statistically insignificant. These null effects might be likely to be due to very high control-group means (86.7–99.0%).

Table 2: Treatment Effects on Main Standard Survey-Based Outcomes

**(A) Attitudes toward Al-Shabaab, Extremism, and Violence**

| | Al-Shabaab | | | Islamic and Violent Extremism | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Willing to rejoin AS depending on rewards | Support a policy that promotes defection and supports defectors (0-10) | Existence of Al-Shabaab is justifiable to stabilize local communities | I would stay alone if I need to interact with non-Muslims | I would stay alone if I need to interact with foreigners | Forcing someone to convert to your religion is justified | There are ways to solve problems rather than using violence | Fighting is the only form of Jihad |
| Treat | -0.179*** | -0.868** | -0.147** | 0.117** | 0.026 | 0.146** | -0.239*** | 0.040 |
| | (0.053) | (0.334) | (0.064) | (0.056) | (0.061) | (0.057) | (0.054) | (0.051) |
| $R^2$ | 0.211 | 0.159 | 0.131 | 0.140 | 0.202 | 0.248 | 0.259 | 0.061 |
| Mean Dep. Var. (C) | 0.275 | 7.357 | 0.368 | 0.156 | 0.316 | 0.200 | 0.866 | 0.125 |
| Std. Dev. Var. (C) | 0.449 | 2.368 | 0.485 | 0.365 | 0.467 | 0.402 | 0.342 | 0.332 |
| Observations | 169 | 163 | 189 | 189 | 191 | 189 | 192 | 189 |
| Romano-Wolf $p$-value | 0.005 | 0.023 | 0.023 | 0.110 | 0.670 | 0.047 | 0.001 | 0.668 |

**(B) Prosocial Attitudes**

| | General | | | | | Peacebuilding | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Concrete roles within my family and communities | Concrete roles within society at large | Willing to help people in need | Expect financial rewards for contributions to society | Quiet life rather than becoming a role model | Feel myself valuable in peacebuilding | Would like to apologize to victims |
| Treat | -0.050* | -0.084 | -0.010 | -0.147*** | -0.058 | -0.051 | -0.104* |
| | (0.026) | (0.054) | (0.017) | (0.054) | (0.064) | (0.041) | (0.052) |
| $R^2$ | 0.061 | 0.046 | 0.014 | 0.455 | 0.233 | 0.225 | 0.212 |
| Mean Dep. Var. (C) | 0.990 | 0.867 | 0.990 | 0.510 | 0.480 | 0.907 | 0.845 |
| Std. Dev. Var. (C) | 0.102 | 0.341 | 0.101 | 0.502 | 0.502 | 0.292 | 0.363 |
| Observations | 192 | 194 | 194 | 193 | 193 | 193 | 190 |
| Romano-Wolf $p$-value | 0.227 | 0.318 | 0.644 | 0.038 | 0.618 | 0.233 | 0.103 |

**(C) Economic Expectations and Effort Taking**

| | Expected Income | | | Efforts (Goal Setting) | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Likelihood not finding any job (0-10) | Expected monthly income (conditional) | Expected monthly income $\geq$ 500USD | Number of sub-goals in the goal setting | Number of small goals in the goal setting |
| Treat | -0.141 | -38.724 | -0.032* | -0.710*** | -3.599*** |
| | (0.286) | (27.004) | (0.018) | (0.171) | (0.916) |
| $R^2$ | 0.079 | 0.120 | 0.044 | 0.193 | 0.361 |
| Mean Dep. Var. (C) | 5.806 | 226.531 | 0.031 | 3.460 | 15.010 |
| Std. Dev. Var. (C) | 2.167 | 244.338 | 0.173 | 1.314 | 7.960 |
| Observations | 193 | 193 | 193 | 196 | 196 |
| Romano-Wolf $p$-value | 0.622 | 0.285 | 0.216 | 0.003 | 0.003 |

| FE | Defector rehabilitation center |
|---|---|

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one month after the completion of the eight sessions. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. In Panel (A), the measure of willingness to rejoin Al-Shabaab reported in column (1) is constructed from a survey question that asks whether the respondent would consider rejoining Al-Shabaab at different proposed monthly earnings. Because the question also includes the option "I would never join Al-Shabaab," the constructed variable takes the value one if the respondent selected any reward level at which they would be willing to rejoin Al-Shabaab, and zero otherwise. The measure of support for a policy promoting and supporting defectors reported in column (2) is constructed from a survey question that asked respondents to hypothetically allocate 10USD between a policy promoting child health care in Somalia and a policy supporting defectors. The value takes the dollar amount allocated to the defector-support policy. the dependent variables in columns (3)-(8) are dummies. In Panel (B), all dependent variables are dummies. In Panel (C), the dependent variable in column (3) is a dummy. The Romano-Wolf $p$-value is computed based on 1000 resamples. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

The most prominent effect appears in column (4): treated participants are 14.7 percentage points less likely to expect financial rewards for contributing to society relative to a control mean of 51.0%, corresponding to a 28.8% decline, which is statistically and economically significant. This finding suggests that

the peacebuilder narrative shifts motivations away from a transactional logic, where effort is exchanged for material gain, encouraging ex-combatants to view serving their community as an intrinsic duty or part of their new roles.

Treatment effects on preference for a quiet life (column 5) and feeling valuable in peacebuilding (column 6) are modest and statistically insignificant. Column (7) shows that treated participants are 10.4 percentage points less likely to report a desire to apologize to victims (control mean: 84.5%, statistically significant around the 10% level). While this result may appear counterintuitive, this pattern is consistent with a shift in perception: framing participants as future-oriented agents of peace may encourage them to focus on prospective contributions rather than retrospective atonement.

Taken together, Panel (B) suggests that the intervention primarily operates by reducing transactional expectations and focusing on prospective contribution. Yet, an alternative interpretation is that the treatment reduces social desirability bias. Participants in the control group may provide responses they perceive as expected—such as expressing remorse—whereas treated participants, having internalized a more specific role, respond more candidly even when their answers appear less normatively appealing. We revisit this interpretation using text-based measures in Section 4.2.

**Economic Expectations and Effort Taking**

Panel (C) examines whether the intervention shifts economic expectations and effort-taking.[20] Column (1) shows that the impact on the perceived likelihood of unemployment is statistically insignificant. Though statistically insignificant, column (2) shows that treated individuals report lower expected income conditional on finding a job (approximately a 17% decline relative to the control mean). Column (3) indicates that treated individuals are less likely to expect high earnings ($\geq 500$ USD per month), which is marginally significant at the 10% level but not robust to the Romano–Wolf correction. While weak, these results provide suggestive evidence that the narrative intervention may promote more realistic, rather than overly optimistic, expectations following release, possibly by raising awareness of the challenges of post-release life in an active conflict environment.[21]

In the goal-setting exercise, treated participants list significantly fewer sub-goals and small goals (columns 4-5), with reductions of approximately 20-25% relative to control means. Rather than reflecting disengagement, the reduction in the number of goals may indicate a quality–quantity trade-off: Text analysis in Section 4.2 reveals that treated participants describe relatively more prosocial goals rather than personal ones, which are the key component of social reintegration.

---

[20]Questions related to economic expectations were not pre-specified in our pre-analysis plan. They were added shortly before the endline survey, in connection with a related instrument being developed for our ongoing research involving prisoners.

[21]Table A.13 reports treatment effects on personal prospects, also revealing patterns that are consistent with tempered and more realistic expectations regarding the severe challenges of post-release life.

## 4.2 Text-Based Outcomes

**Descriptive Statistics and Validation**

Figure 1 presents the distribution of text-based outcomes for treatment and control groups.[22] All constructed variables exhibit substantial variation across participants. Notably, the distributions for treated participants are generally shifted to the right compared to those in the control group.
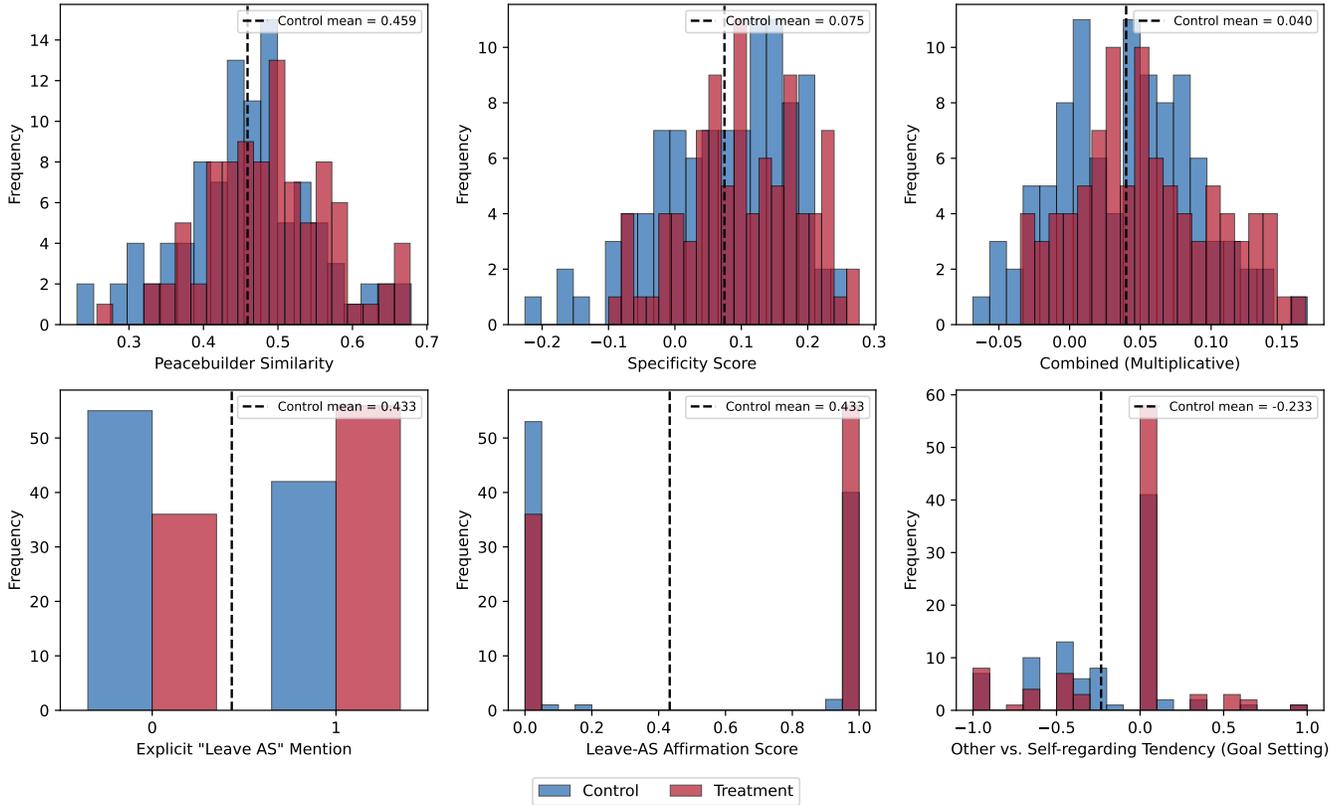


Figure 1: Distribution of Text-based Outcomes

*Notes*: Each panel displays the individual-level distribution of a constructed text-based outcome. Peacebuilder Similarity and Specificity Score are computed from sentence-embedding cosine similarities between participant responses and pre-specified reference sentences. Combined (Multiplicative) is the product of these two scores. For these three outcomes, we average each respondent's scores across four questions: "Have you taken any new action?", "Do you wish to have any new action?", "What are the most important elements in building sustainable peace?", and "How would you like to improve your future?". Explicit "Leave AS" Mention is a dictionary-based indicator $(0/1)$ for messages to current Al-Shabaab members containing leave/quit/defect language. Leave-AS Affirmation Score is the predicted probability from a weakly supervised, embedding-based classifier trained on the AS leave-indicator labels. Other vs. Self-regarding Tendency (Goal Settings) is the difference between the share of Mandala-chart subgoals classified as other-oriented versus self-oriented, with higher values indicating more other-regarding goals. Continuous outcomes are shown in red and binary indicator is shown in blue. The dashed vertical line denotes the sample mean in each panel.

To illustrate the practical meaning of these variations, Table A.16 presents representative examples at each quartile for both Peacebuilder Similarity and Specificity Score. The examples demonstrate clear

---

[22]Table A.14 shows summary statistics for the entire sample.

face validity: responses in the bottom quartile of Peacebuilder Similarity are vague, off-topic, or express uncertainty (e.g., "I don't know yet"), while responses in the top quartile articulate specific peacebuilding intentions with concrete language about community support, conflict resolution, and reconciliation. Similarly, responses with low Specificity Scores contain abstract, generic statements (e.g., "My thoughts changed very much"), while high-scoring responses describe concrete actions with specific details.

**External validation.** To assess whether these text-based measures capture meaningful variation in rehabilitation outcomes, we examine their correlations with Likert-scale outcomes that showed significant treatment effects in Section 4.1. Table 3 presents Spearman correlations between text-based outcomes and three validation variables: willingness to rejoin Al-Shabaab (pro-Al-Shabaab), belief that forced religious conversion is justified (conservative ideology), and belief that problems can be solved without violence (anti-violence).

All text-based measures are significantly negatively correlated with willingness to rejoin Al-Shabaab, with the Combined score (multiplicative between peacebuilder similarity and specificity) showing the strongest correlation ($r = -0.249$). This suggests that participants who express their intentions with vague, non-specific, and non-peace-oriented language are more likely to indicate willingness to rejoin the armed group—potentially reflecting lower genuine engagement with the rehabilitation and peacebuilding process.

Several text-based measures show significant positive correlations with endorsement of forced conversion ($r = 0.24$ to $0.31$). This results is consistent with the coexistence of organizational disengagement and ideological commitments that we observed from the survey-based outcomes. In contrast, the correlations with "solve problems without violence" are weak and not statistically significant.

Table 3: Validation: Correlations with Likert-Scale Outcomes

| Text-based Outcome | Willing to Rejoin Al-Shabaab | | | Forced Conversion Justified | | | Solve Without Violence | | |
|---|---|---|---|---|---|---|---|---|---|
| | $r$ | $p$ | $N$ | $r$ | $p$ | $N$ | $r$ | $p$ | $N$ |
| Peacebuilder Similarity | −0.200*** | 0.010 | 165 | 0.312*** | <0.001 | 186 | −0.097 | 0.187 | 188 |
| Specificity Score | −0.248*** | 0.001 | 165 | 0.242*** | <0.001 | 186 | 0.006 | 0.939 | 188 |
| Combined (Multiplicative) | −0.249*** | 0.001 | 165 | 0.273*** | <0.001 | 186 | −0.013 | 0.865 | 188 |
| Explicit "Leave AS" Mention | −0.147* | 0.061 | 163 | −0.044 | 0.550 | 184 | −0.027 | 0.718 | 186 |
| Leave-AS Affirmation Score | −0.139* | 0.077 | 163 | −0.069 | 0.351 | 184 | −0.024 | 0.742 | 186 |
| Other vs. Self-regarding Tendency (Goal Setting) | −0.178** | 0.024 | 160 | 0.144* | 0.057 | 176 | −0.113 | 0.131 | 179 |

*Notes*: Entries report bivariate Spearman rank correlations ($r$) between each text-based outcome and each Likert-scale outcome, with two-sided $p$-values and the number of non-missing pairs ($N$). Peacebuilder Similarity, Specificity Score, and Combined (Multiplicative) are averaged across four questions: "Have you taken any new action?", "Do you wish to have any new action?", "What are the most important elements in building sustainable peace?", and "How would you like to improve your future?". Explicit "Leave AS" Mention and Leave-AS Affirmation Score are constructed from a question asking what message the respondent would send as an anonymous message to an individual who currently belongs to Al-Shabaab. Other vs. Self-regarding Tendency (Goal Setting) is constructed from the goal-setting (Mandala) subgoals. "Willing to Rejoin Al-Shabaab" and "Forced Conversion Justified" are pro-violent attitudes where negative correlations indicate validity. "Solve Without Violence" is a pro-peace attitude where positive correlations indicate validity. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

**Treatment Effects**

Table 4 presents the treatment effects on the text-based outcomes. First, the peacebuilding narrative significantly increases similarity to peacebuilding reference texts by 0.031 (column 1), representing a 6.7%

Table 4: Treatment Effects on Text-based Outcomes

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Peacebuilder Similarity | Specificity Score | Combined (Multiplicative) | Explicit "Leave AS" Mention | Leave-AS Affirmation Score | Other vs. Self-regarding Tendency (Goal Setting) |
| Treat | 0.031*** | 0.028** | 0.015** | 0.177** | 0.175*** | 0.111** |
| | (0.012) | (0.013) | (0.007) | (0.069) | (0.067) | (0.056) |
| $R^2$ | 0.152 | 0.143 | 0.167 | 0.122 | 0.126 | 0.056 |
| Mean Dep. Var. (C) | 0.459 | 0.075 | 0.040 | 0.433 | 0.433 | -0.233 |
| Std. Dev. Var. (C) | 0.089 | 0.101 | 0.048 | 0.498 | 0.486 | 0.372 |
| Observations | 191 | 191 | 191 | 189 | 189 | 182 |
| FE | | | Defector rehabilitation center | | | |

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. Each column represents a regression of the text-based outcome on treatment assignment. Peacebuilder Similarity, Specificity Score, and Combined (Multiplicative) are averaged across four questions: "Have you taken any new action?", "Do you wish to have any new action?", "What are the most important elements in building sustainable peace?", and "How would you like to improve your future?". Explicit "Leave AS" Mention is a dictionary-based binary flag for explicit leave/quit/defect language in a question asking what message the respondent would send as an anonymous message to an individual who currently belongs to Al-Shabaab. Leave-AS Affirmation Score is a weakly supervised model-based score trained on the AS leave-indicator labels. Other vs. Self-regarding Tendency (Goal Setting) is the difference between the share of subgoals classified as other-oriented and self-oriented. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

increase relative to the control mean. It also significantly increases language specificity by 0.028 (column 2), representing a 37% increase relative to the control mean. This suggests that treated participants describe their intentions in more concrete, action-oriented terms rather than vague generalities. Consequently, the combined measure also rises significantly by 0.015 (column 3), indicating that responses become both more peace-oriented and more specific.

Second, treated respondents are more likely to mention phrases that encourage combatants to leave Al-Shabaab. Column (4) shows that the treatment significantly increases the score of the explicit mentioning of leaving Al-Shabaab by 0.18, about a 40% increase over the control mean. Similarly, column (5) shows a significant increase in the related affirmation score of leaving Al-Shabaab by 0.18, with the same proportional effect.

Third, in the goal setting exercise reported in column (6), treated participants describe relatively more goals focused on relationships with others, rather than purely personal objectives. The treatment significantly increases the 'other- vs. self-regarding' tendency score by 0.11, representing a 48% increase relative to the control mean. Table A.15 disaggregate the other and self-regarding indicators by sub-goals and small goals. Treated participants list fewer self-regarding goals, while the number of other-regarding goals remain unchanged. This pattern may imply that treated participants engage with the exercise more thoughtfully, avoiding irrelevant goals that are less aligned with social reintegration.

These findings are consistent with the hypothesis that peacebuilder messaging encourages participants to articulate their future roles with greater specificity and explicit peacebuilding orientation, drives disengagement with the extremist organization, and promote more prosocial goals.

# 5 Discussion and Conclusions

Targeting former members of an armed extremist organization in Somalia, this paper examines how a narrative-based rehabilitation intervention shapes key pre-conditions for reintegration and peacebuilding, including ideological outcomes, prosocial attitudes, and economic expectations.

We find a clear pattern of organizational disengagement. Treated participants are substantially less willing to rejoin Al-Shabaab, even when material rewards are offered, and are less likely to justify the organization's role in providing local stability. These effects are large in magnitude and align directly with the core objectives of rehabilitation programs.

Text-based measures provide additional support for this interpretation. In open-ended responses about what participants learned and the actions they plan to take, treated participants provide more specific answers that align more closely with a peacebuilding identity. In messages addressed to current Al-Shabaab members, treated participants are more likely to explicitly encourage leaving the organization and score higher on a weakly supervised leave-affirmation measure trained on these messages.

Our findings also highlight the coexistence of organizational disengagement, a peacebuilder identity, and deeper ideological commitments. While treated participants distance themselves from Al-Shabaab as an institution, some conservative religious ideologies persist or even strengthen. Participants may reject participation in the armed group while maintaining underlying beliefs that are not fully aligned with liberal or nonviolent norms. This contrast implies that some treated participants may have reinterpreted the peacebuilding message through a strict moral or religious lens. These findings carry important policy implications. Programs promoting disengagement and reintegration may succeed without immediate ideological moderation, but complementary interventions may be necessary to address persistent beliefs rooted in intolerance or violence.

The intervention also reshapes prosocial attitudes. While treated respondents exhibit a lower willingness to apologize to victims for the past actions, text-based analysis indicates that they place greater emphasis on others when discussing future reintegration. Treated individuals are less likely to expect financial rewards from social contribution, and there is suggestive evidence that the intervention lowers expected income. Together, these results suggest the peacebuilding narrative fosters forward-looking reintegration and shifts participants away from a narrow focus on income maximization and transactional motivations toward intrinsic and non-material objectives, consistent with the peacebuilder narrative emphasized in the intervention. These changes in self-perception and motivation may influence how participants respond to incentive-based policies, with implications for the design of defection and reintegration programs.

While this paper provides novel evidence on the reintegration of an understudied population of ex-combatants from an extremist group, several limitations warrant attention. First, outcomes are measured in the short run, and the persistence of effects remains an open question. Due to limited phone access and the fragile and unstable political environment in Somalia, tracking participants after their release from rehabilitation centers is challenging. Second, while we contribute to the literature by focusing on defectors in rehabilitation prior to reintegration, a critical yet understudied group in modern armed conflicts, these individuals may differ systematically from combatants who remain active in extremist organizations. Our

ongoing research targeting former Al-Shabaab prisoners will highlight how defectors differ from non-defecting members. Addressing these limitations, and examining how narrative interventions interact with material incentives and longer-run economic opportunities, remain important directions for future research.

# References

**Abele, Andrea E. and Bogdan Wojciszke**, "Agency and communion from the perspective of self versus others.," *Journal of personality and social psychology*, 2007, *93* (5), 751.

**Akerlof, Robert**, "Value formation: The role of esteem," *Games and Economic Behavior*, 2017, *102*, 1–19.

**Alan, Sule and Elif Kubilay**, "Empowering adolescents to transform schools: Lessons from a behavioral targeting," *American Economic Review*, 2025, *115* (2), 365–407.

**Ash, Elliott and Stephen Hansen**, "Text Algorithms in Economics," *Annual Review of Economics*, September 2023, *15* (1), 659–688.

_ , **Daniel L. Chen, and Arianna Ornaghi**, "Gender attitudes in the judiciary: Evidence from US circuit courts," *American Economic Journal: Applied Economics*, 2024, *16* (1), 314–350.

**Atkin, David, Eve Colson-Sihra, and Moses Shayo**, "How Do We Choose Our Identity? A Revealed Preference Approach Using Food Consumption," *Journal of Political Economy*, April 2021.

**Australian National Security**, "Al-Shabaab," (Last updated: 22 September 2024), https://www.nationalsecurity.gov.au/what–australia–is–doing/terrorist–organisations/listed–terrorist–organisations/al–shabaab.

**Bauer, Michal, Nathan Fiala, and Ian Levely**, "Trusting former rebels: An experimental approach to understanding reintegration after civil war," *The Economic Journal*, 2017, *128* (613), 1786–1819.

**Blair, Graeme, Rebecca Littman, Elizabeth R Nugent, Rebecca Wolfe, Mohammed Bukar, Benjamin Crisman, Anthony Etim, Chad Hazlett, and Jiyoung Kim**, "Trusted authorities can change minds and shift norms during conflict," *Proceedings of the National Academy of Sciences*, 2021, *118* (42), e2105570118.

**Blattman, Christopher and Edward Miguel**, "Civil war," *Journal of Economic literature*, 2010, *48* (1), 3–57.

_ **and Jeannie Annan**, "Can employment reduce lawlessness and rebellion? A field experiment with high-risk men in a fragile state," *American Political Science Review*, 2016, *110* (1), 1–17.

_ , **Julian C Jamison, and Margaret Sheridan**, "Reducing crime and violence: Experimental evidence from cognitive behavioral therapy in Liberia," *American Economic Review*, 2017, *107* (4), 1165–1206.

**Brockmeyer, Anne, Quy-Toan Do, Clément Joubert, Kartika Bhatia, and Mohamed Abdel Jelil**, "Transnational terrorist recruitment: Evidence from daesh personnel records," *The Review of Economics and Statistics*, January 2022, pp. 1–46.

**Bursztyn, Leonardo, Ingar K. Haaland, Nicolas Röver, and Christopher Roth**, "The Social Desirability Atlas," Technical Report, National Bureau of Economic Research 2025.

**Cockayne, James and Siobhan O'Neil, eds**, *UN DDR in an era of violent extremism: is it fit for purpose?* 2015.

**Esposito, Elena, Tiziano Rotesi, Alessandro Saia, and Mathias Thoenig**, "Reconciliation Narratives," *The American Economic Review*, 2023, *113* (6), 1461–1504.

**Gelot, Linnéa and Prabin B Khadka**, "Social reintegration of former al-Shabaab militants: How formal channels help mitigate threat perceptions," *Journal of Peace Research*, November 2025, *62* (6), 1820–1838.

**Gentzkow, Matthew, Bryan Kelly, and Matt Taddy**, "Text as data," *Journal of Economic Literature*, 2019, *57* (3), 535–74.

**Ghosal, Sayantan, Smarajit Jana, Anandi Mani, Sandip Mitra, and Sanchari Roy**, "Sex Workers, Stigma, and Self-Image: Evidence from Kolkata Brothels," *The Review of Economics and Statistics*, May 2022, *104* (3), 431–448.

**Gilligan, Michael J, Eric N Mvukiyehe, and Cyrus Samii**, "Reintegrating rebels into civilian life: Quasi-experimental evidence from Burundi," *Journal of Conflict Resolution*, 2013, *57* (4), 598–626.

**Glazzard, Andrew**, "Disengaging and Reintegrating Violent Extremists in Conflict Zones," Technical Report Peaceworks No. 187, United States Institute of Peace 2023.

**Humphreys, Macartan and Jeremy M Weinstein**, "Demobilization and reintegration," *Journal of conflict resolution*, 2007, *51* (4), 531–567.

**Kalyvas, Stathis N. and Mikael Hiberg Naghizadeh**, "Islamism and Armed Conflict," *Annual Review of Political Science*, June 2025, *28* (1), 393–411.

**Khalil, James, Rory Brown, Chris Chant, Peter Olowo, and Nick Wood**, "Deradicalisation and Disengagement in Somalia Evidence from a Rehabilitation Programme for Former Members of Al-Shabaab," *RUSI Whitehall Report*, 2019.

**Kubo, Masahiro and Shunsuke Tsuda**, "Jihad over Centuries," *arXiv preprint arXiv:2211.04763*, 2025.

**Mapping Militants Project**, "Al Shabaab," (Last modified May 1, 2025), https://mappingmilitants.org/node/316/.

**Mitts, Tamar**, "From isolation to radicalization: Anti-Muslim hostility and support for ISIS in the West," *American Political Science Review*, 2019, *113* (1), 173–194.

**Nagai, Yosuke**, "Reintegration of al-shabaab's defectors in somalia: An examination of conditions for successful reintegration," *Peace and Conflict Studies*, 2021, *27* (3).

— , "The Missing Pillar: Re-centering Disengagement and Reintegration in the Youth, Peace and Security Agenda for a More Innovative Approach to Sustaining Peace," *Independent Thematic Papers for the Second Independent Progress Study on Youth, Peace and Security*, 2026.

**Reimers, Nils and Iryna Gurevych**, "Sentence-BERT: Sentence Embeddings using Siamese BERT-Networks," in "Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and the 9th International Joint Conference on Natural Language Processing (EMNLP-IJCNLP)" Association for Computational Linguistics 2019, p. 3982.

**Rohner, Dominic**, "Mediation, military, and money: The promises and pitfalls of outside interventions to end armed conflicts," *Journal of Economic Literature*, 2024, *62* (1), 155–195.

— **, Oliver Vanden Eynde, and Emma Verhille**, "Variants of violence: Classifying conflict types and policies for peace," *Economic Policy*, 2025, *40* (123), 621–645.

**Romano, Joseph P and Michael Wolf**, "Exact and Approximate Stepdown Methods for Multiple Hypothesis Testing," *Journal of the American Statistical Association*, March 2005, *100* (469), 94–108.

**Romano, Joseph P. and Michael Wolf**, "Stepwise Multiple Testing as Formalized Data Snooping," *Econometrica*, July 2005, *73* (4), 1237–1282.

**Shayo, Moses**, "A Model of Social Identity with an Application to Political Economy: Nation, Class, and Redistribution," *American Political Science Review*, May 2009, *103* (2), 147–174.

**Shiller, Robert J.**, "Narrative economics: How stories go viral and drive major economic events," 2020.

**Tausczik, Yla R. and James W. Pennebaker**, "The Psychological Meaning of Words: LIWC and Computerized Text Analysis Methods," *Journal of Language and Social Psychology*, March 2010, *29* (1), 24–54.

**Taylor, Christian, Tanner Semmelrock, and Alexandra McDermott**, "The cost of defection: The consequences of quitting al-shabaab," *International Journal of Conflict and Violence (IJCV)*, 2019, *13*, a657–a657.

# SUPPLEMENTAL APPENDIX

# The Power of Narratives in Transforming Ex-Combatants into Agents of Peace: Evidence from Somalia

## Jun Goto, Tomohiro Hara, Yosuke Nagai, and Shunsuke Tsuda

## A  Additional Figures and Tables



Figure A.1: The Four Defector Rehabilitation Centers in Somalia

*Notes*: Mogadishu (top-left), Kisumayo (top-right), Baidoa (bottom-left), and Dhusamareb (bottom-right). These pictures were taken by the local field team in 2025.

| First Main Goal: Reintegration into society |
|---|

**Sub Goal 1**
Building good human relationships

| (1a) Being kind to neighbors | (1b) | (1c) | (1d) |
|---|---|---|---|
| (1e) | (1f) | (1g) | (1h) |

**Sub Goal 2**

| (2a) | (2b) | (2c) | (2d) |
|---|---|---|---|
| (2e) | (2f) | (2g) | (2h) |

**Sub Goal 3**

| (3a) | (3b) | (3c) | (3d) |
|---|---|---|---|
| (3e) | (3f) | (3g) | (3h) |

**Sub Goal 4**

| (4a) | (4b) | (4c) | (4d) |
|---|---|---|---|
| (4e) | (4f) | (4g) | (4h) |

**Sub Goal 5**

| (5a) | (5b) | (5c) | (5d) |
|---|---|---|---|
| (5e) | (5f) | (5g) | (5h) |

**Sub Goal 6**

| (6a) | (6b) | (6c) | (6d) |
|---|---|---|---|
| (6e) | (6f) | (6g) | (6h) |

**Sub Goal 7**

| (7a) | (7b) | (7c) | (7d) |
|---|---|---|---|
| (7e) | (7f) | (7g) | (7h) |

**Sub Goal 8**

| (8a) | (8b) | (8c) | (8d) |
|---|---|---|---|
| (8e) | (8f) | (8g) | (8h) |

Figure A.2: The Goal Setting Exercise

*Notes*: This figure illustrates the goal setting exercise at the end of the one-month followup survey.

Table A.1: Survey Locations

| DRC name | Admin. region and district | Number of subjects | Number of classrooms |
|---|---|---|---|
| Mogadishu | Mogadishu, Banaadir | 52 | 4 |
| Baidoa | Bay, Baidoa | 88 | 4 |
| Kismayo | Lower Juba, Kismayo | 67 | 4 |
| Dhusamareb | Galguduud, Dusmareb | 39 | 2 |

Table A.2: Balance Tests for Baseline Characteristics of Al-Shabaab Defectors

| | Control (C) | | Treated (T) | | t-test (T=C) |
|---|---|---|---|---|---|
| | Mean | N | Mean | N | p-value |
| *Panel A: Demographic and economic characteristics* | | | | | |
| Age | 26.12 | 115 | 26.24 | 118 | 0.88 |
| Read and write Somali | 0.72 | 123 | 0.63 | 123 | 0.17 |
| Read and write Arabic | 0.33 | 123 | 0.38 | 123 | 0.43 |
| Read and write English | 0.02 | 123 | 0.05 | 123 | 0.15 |
| Years of education | 3.61 | 97 | 2.56 | 91 | 0.06* |
| Graduated Madrasa Qurantic school | 0.56 | 105 | 0.55 | 111 | 0.86 |
| Worked in last 12 months before joining AS | 0.37 | 122 | 0.40 | 122 | 0.60 |
| Monthly income ≤ 50USD before joining AS | 0.75 | 119 | 0.78 | 120 | 0.52 |
| Monthly income > 100USD before joining AS | 0.16 | 119 | 0.11 | 120 | 0.25 |
| Monthly income > 500USD before joining AS | 0.01 | 119 | 0.02 | 120 | 0.57 |
| Had access to land plot for agriculture before joining AS | 0.75 | 110 | 0.75 | 111 | 0.97 |
| Number of cattle your household owned before joining AS | 24.91 | 97 | 25.33 | 95 | 0.95 |
| No food to eat at least once in one month before joining AS | 0.39 | 122 | 0.40 | 120 | 0.82 |
| *Panel B: Al-Shabaab recruitment and rewards* | | | | | |
| How long you were in Al-Shabaab (AS) (years) | 4.36 | 115 | 4.47 | 117 | 0.82 |
| Forced/Coerced/Abducted/Threatened to join AS | 0.19 | 111 | 0.13 | 116 | 0.22 |
| Persuaded by family members or friends to join AS | 0.17 | 111 | 0.13 | 116 | 0.38 |
| Invited by the group to join AS | 0.26 | 111 | 0.31 | 116 | 0.42 |
| Voluntarily (at your own initiative) joined AS | 0.40 | 111 | 0.42 | 116 | 0.69 |
| Money was provided when joined AS | 0.99 | 76 | 0.99 | 68 | 0.94 |
| Wife was provided when joined AS | 0.07 | 76 | 0.07 | 68 | 0.86 |
| House was provided when joined AS | 0.03 | 76 | 0.00 | 68 | 0.18 |
| Car was provided when joined AS | 0.01 | 76 | 0.00 | 68 | 0.35 |
| Amount (USD) provided when joined AS | 48.21 | 24 | 54.80 | 15 | 0.59 |
| Received monetary reward while you were in AS | 0.70 | 111 | 0.68 | 114 | 0.76 |
| Monthly reward (USD) while you were in AS | 73.20 | 78 | 72.56 | 78 | 0.96 |
| *Panel C: Attitudes, preferences, and expectations* | | | | | |
| Trust local NGO (1: fully distrust-4: fully trust) | 2.87 | 68 | 2.80 | 69 | 0.69 |
| Trust clan elders (1: fully distrust-4: fully trust) | 3.26 | 82 | 3.35 | 89 | 0.49 |
| Trust international NGO (1: fully distrust-4: fully trust) | 3.13 | 52 | 3.48 | 50 | 0.05** |
| Trust Federal Government (1: fully distrust-4: fully trust) | 3.47 | 86 | 3.51 | 87 | 0.66 |
| Trust State Government (1: fully distrust-4: fully trust) | 3.14 | 70 | 3.28 | 68 | 0.20 |
| Trust opposition groups (1: fully distrust-4: fully trust) | 1.96 | 48 | 2.06 | 53 | 0.60 |
| Trust diaspora (1: fully distrust-4: fully trust) | 3.08 | 36 | 2.90 | 42 | 0.42 |
| Would like to go back to hometown after leaving DRC | 0.21 | 106 | 0.15 | 108 | 0.26 |
| Family/Friends/Relatives/Community would accomodate me | 0.97 | 117 | 0.96 | 115 | 0.72 |

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. Years of education are calculated as the sum of years completed in primary school (6 years), secondary school (6 years), and college (4 years). We assign the full number of years if the individual graduated from each level. If the individual attended but did not graduate, we use approximations: 3 years for primary school, 2 years for secondary school, reflecting the structure of lower secondary (2 years) and upper secondary (4 years) prior to 2018, and 2 years for college.

Table A.3: Balance Tests for Baseline Characteristics of Al-Shabaab Defectors Who Participated in the Endline Survey

| | Control (C) | | Treated (T) | | t-test (T=C) |
|---|---|---|---|---|---|
| | Mean | N | Mean | N | p-value |
| *Panel A: Demographic and economic characteristics* | | | | | |
| Age | 26.55 | 92 | 26.33 | 92 | 0.80 |
| Read and write Somali | 0.66 | 97 | 0.61 | 95 | 0.48 |
| Read and write Arabic | 0.34 | 97 | 0.39 | 95 | 0.48 |
| Read and write English | 0.01 | 97 | 0.03 | 95 | 0.30 |
| Years of education | 3.60 | 75 | 2.66 | 73 | 0.14 |
| Graduated Madrasa Qurantic school | 0.51 | 80 | 0.56 | 85 | 0.50 |
| Worked in last 12 months before joining AS | 0.34 | 97 | 0.46 | 94 | 0.10* |
| Monthly income ≤ 50USD before joining AS | 0.77 | 95 | 0.76 | 92 | 0.90 |
| Monthly income > 100USD before joining AS | 0.15 | 95 | 0.12 | 92 | 0.58 |
| Monthly income > 500USD before joining AS | 0.01 | 95 | 0.01 | 92 | 0.98 |
| Had access to land plot for agriculture before joining AS | 0.77 | 86 | 0.79 | 86 | 0.72 |
| Number of cattle your household owned before joining AS | 24.54 | 81 | 19.94 | 72 | 0.45 |
| No food to eat at least once in one month before joining AS | 0.41 | 96 | 0.38 | 93 | 0.68 |
| *Panel B: Al-Shabaab recruitment and rewards* | | | | | |
| How long you were in Al-Shabaab (AS) (years) | 4.49 | 92 | 4.66 | 89 | 0.76 |
| Forced/Coerced/Abducted/Threatened to join AS | 0.18 | 88 | 0.12 | 89 | 0.28 |
| Persuaded by family members or friends to join AS | 0.17 | 88 | 0.12 | 89 | 0.38 |
| Invited by the group to join AS | 0.27 | 88 | 0.29 | 89 | 0.78 |
| Voluntarily (at your own initiative) joined AS | 0.38 | 88 | 0.45 | 89 | 0.32 |
| Money was provided when joined AS | 0.98 | 61 | 1.00 | 56 | 0.34 |
| Wife was provided when joined AS | 0.08 | 61 | 0.07 | 56 | 0.83 |
| House was provided when joined AS | 0.03 | 61 | 0.00 | 56 | 0.17 |
| Car was provided when joined AS | 0.02 | 61 | 0.00 | 56 | 0.34 |
| Amount (USD) provided when joined AS | 52.10 | 20 | 62.00 | 12 | 0.48 |
| Received monetary reward while you were in AS | 0.67 | 86 | 0.68 | 87 | 0.96 |
| Monthly reward (USD) while you were in AS | 80.39 | 58 | 77.81 | 59 | 0.89 |
| *Panel C: Attitudes, preferences, and expectations* | | | | | |
| Trust local NGO (1: fully distrust-4: fully trust) | 2.79 | 53 | 2.83 | 54 | 0.84 |
| Trust clan elders (1: fully distrust-4: fully trust) | 3.30 | 67 | 3.31 | 68 | 0.95 |
| Trust international NGO (1: fully distrust-4: fully trust) | 3.05 | 41 | 3.51 | 39 | 0.03** |
| Trust Federal Government (1: fully distrust-4: fully trust) | 3.50 | 68 | 3.52 | 69 | 0.83 |
| Trust State Government (1: fully distrust-4: fully trust) | 3.12 | 51 | 3.22 | 54 | 0.41 |
| Trust opposition groups (1: fully distrust-4: fully trust) | 1.97 | 37 | 2.15 | 40 | 0.41 |
| Trust diaspora (1: fully distrust-4: fully trust) | 3.14 | 28 | 2.84 | 32 | 0.22 |
| Would like to go back to hometown after leaving DRC | 0.22 | 82 | 0.13 | 84 | 0.13 |
| Family/Friends/Relatives/Community would accomodate me | 0.98 | 92 | 0.94 | 90 | 0.24 |

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. Years of education are calculated as the sum of years completed in primary school (6 years), secondary school (6 years), and college (4 years). We assign the full number of years if the individual graduated from each level. If the individual attended but did not graduate, we use approximations: 3 years for primary school, 2 years for secondary school, reflecting the structure of lower secondary (2 years) and upper secondary (4 years) prior to 2018, and 2 years for college.

## Table A.4: Treatment Effects on Main Outcomes in the 1-Week Followup Survey

**(A) Islamic and violent extremisms**

| | (1) I would stay alone if I need to interact with non-Muslims | (2) I would stay alone if I need to interact with foreigners | (3) Forcing someone to convert to your religion is justified | (4) There are ways to solve problems rather than using violence | (5) Fighting is the only form of Jihad |
|---|---|---|---|---|---|
| Treat | 0.224*** | 0.257*** | 0.139*** | -0.147*** | 0.154*** |
| | (0.048) | (0.049) | (0.043) | (0.043) | (0.040) |
| $R^2$ | 0.264 | 0.251 | 0.084 | 0.140 | 0.194 |
| Mean Dep. Var. (C) | 0.121 | 0.103 | 0.069 | 0.931 | 0.053 |
| Std. Dev. Var. (C) | 0.327 | 0.306 | 0.254 | 0.254 | 0.224 |
| Observations | 232 | 231 | 231 | 232 | 229 |
| Romano-Wolf $p$-value | 0.001 | 0.001 | 0.006 | 0.006 | 0.002 |

**(B) Prosocial attitudes**

| | (1) Concrete roles within my family and communities | (2) Concrete roles within society at large | (3) Willing to help people in need | (4) Expect financial rewards for contributions to society | (5) Quiet life rather than becoming a role model | (6) Feel myself valuable in peacebuilding | (7) Would like to apologize to victims |
|---|---|---|---|---|---|---|---|
| Treat | 0.065 | 0.138*** | -0.008 | 0.142*** | 0.245*** | 0.018 | 0.017 |
| | (0.043) | (0.052) | (0.014) | (0.051) | (0.055) | (0.021) | (0.037) |
| $R^2$ | 0.080 | 0.249 | 0.016 | 0.308 | 0.319 | 0.011 | 0.024 |
| Mean Dep. Var. (C) | 0.842 | 0.658 | 0.991 | 0.629 | 0.362 | 0.965 | 0.905 |
| Std. Dev. Var. (C) | 0.366 | 0.477 | 0.093 | 0.485 | 0.483 | 0.185 | 0.294 |
| Observations | 230 | 229 | 232 | 231 | 232 | 230 | 231 |
| Romano-Wolf $p$-value | 0.243 | 0.025 | 0.648 | 0.020 | 0.001 | 0.641 | 0.651 |

**(C) Expectation formation**

| | (1) Likelihood not finding any job (0-10) | (2) Expected monthly income | (3) Expected monthly income $\geq$ 500USD |
|---|---|---|---|
| Treat | -2.322*** | -22.815 | 0.026* |
| | (0.255) | (24.297) | (0.015) |
| $R^2$ | 0.407 | 0.153 | 0.035 |
| Mean Dep. Var. (C) | 6.328 | 209.914 | 0.000 |
| Std. Dev. Var. (C) | 1.797 | 144.496 | 0.000 |
| Observations | 232 | 232 | 232 |
| Romano-Wolf $p$-value | 0.001 | 0.323 | 0.142 |

**(D) Personal prospects**

| | (1) Using days positively in DRC now | (2) Satisfied with your current situation | (3) Willing to strive towards personal goals | (4) Concrete image of life after leaving DRC | (5) Concrete plans after leaving DRC | (6) Look forward to leaving DRC | (7) Give up my goals if facing tough issues |
|---|---|---|---|---|---|---|---|
| Treat | 0.057 | -0.199*** | -0.008 | 0.065** | 0.000 | -0.076** | 0.277*** |
| | (0.035) | (0.050) | (0.008) | (0.029) | (0.017) | (0.038) | (0.053) |
| $R^2$ | 0.080 | 0.340 | 0.015 | 0.490 | 0.011 | 0.058 | 0.162 |
| Mean Dep. Var. (C) | 0.895 | 0.784 | 1.000 | 0.862 | 0.983 | 0.939 | 0.104 |
| Std. Dev. Var. (C) | 0.308 | 0.413 | 0.000 | 0.346 | 0.131 | 0.241 | 0.307 |
| Observations | 230 | 231 | 232 | 231 | 230 | 230 | 231 |
| Romano-Wolf $p$-value | 0.995 | 0.706 | . | 0.066 | 0.485 | 0.995 | 0.006 |

| FE | Defector rehabilitation center |
|---|---|

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one week after the completion of the eight sessions. Note that the one-week follow-up survey is an abbreviated version of the main endline survey conducted one month after the intervention. As a result, some questions included in the one-month endline survey were not asked in the one-week follow-up survey. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. All dependent variables in Panels (A)-(D) are dummies. The Romano-Wolf $p$-value is computed based on 1000 resamples. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.5: Heterogeneous Treatment Effects on Main Survey-Based Outcomes by Religious Education (proxied by Madrasa Graduation)

**(A) Attitudes toward Al-Shabaab, Extremism, and Violence**

| | Al-Shabaab | | | Islamic and Violent Extremism | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Willing to rejoin AS depending on rewards | Support a policy that promoting defection and supports defectors (0-10) | Existence of Al-Shabaab is justifiable to stabilize local communities | I would stay alone if I need to interact with non-Muslims | I would stay alone if I need to interact with foreigners | Forcing someone to convert to your religion is justified | There are ways to solve problems rather than using violence | Fighting is the only form of Jihad |
| Treat | -0.101 | -0.763 | -0.200* | -0.065 | -0.125 | -0.081 | -0.217*** | -0.044 |
| | (0.079) | (0.646) | (0.110) | (0.071) | (0.100) | (0.075) | (0.075) | (0.075) |
| Graduated Madrasa | 0.024 | 0.628 | 0.170 | -0.131* | -0.154 | -0.112 | 0.003 | -0.047 |
| | (0.095) | (0.566) | (0.111) | (0.077) | (0.115) | (0.088) | (0.067) | (0.083) |
| Treat × Graduated Madrasa | -0.076 | -0.536 | -0.047 | 0.276** | 0.248* | 0.267** | 0.006 | 0.089 |
| | (0.122) | (0.790) | (0.143) | (0.109) | (0.135) | (0.113) | (0.117) | (0.104) |
| $R^2$ | 0.216 | 0.222 | 0.176 | 0.229 | 0.240 | 0.307 | 0.288 | 0.065 |
| Mean Dep. Var. (C) | 0.257 | 7.615 | 0.434 | 0.156 | 0.316 | 0.197 | 0.872 | 0.143 |
| Std. Dev. Var. (C) | 0.440 | 2.269 | 0.499 | 0.365 | 0.468 | 0.401 | 0.336 | 0.352 |
| Observations | 142 | 133 | 159 | 159 | 161 | 159 | 162 | 159 |

**(B) Prosocial Attitudes**

| | General | | | | | Peacebuilding | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Concrete roles within my family and communities | Concrete roles within society at large | Willing to help people in need | Expect financial rewards for contributions to society | Quiet life rather than becoming a role model | Feel myself valuable in peacebuilding | Would like to apologize to victims |
| Treat | -0.072 | -0.176* | -0.024 | -0.209** | -0.035 | -0.073 | -0.087 |
| | (0.056) | (0.092) | (0.025) | (0.106) | (0.099) | (0.065) | (0.071) |
| Graduated Madrasa | 0.039 | -0.006 | -0.030 | -0.051 | 0.093 | -0.108 | -0.001 |
| | (0.033) | (0.086) | (0.031) | (0.117) | (0.112) | (0.071) | (0.073) |
| Treat × Graduated Madrasa | 0.020 | 0.193 | 0.025 | 0.065 | -0.046 | 0.021 | -0.019 |
| | (0.064) | (0.122) | (0.043) | (0.134) | (0.140) | (0.094) | (0.105) |
| $R^2$ | 0.071 | 0.071 | 0.018 | 0.396 | 0.267 | 0.249 | 0.254 |
| Mean Dep. Var. (C) | 0.987 | 0.848 | 0.987 | 0.595 | 0.506 | 0.911 | 0.872 |
| Std. Dev. Var. (C) | 0.113 | 0.361 | 0.113 | 0.494 | 0.503 | 0.286 | 0.336 |
| Observations | 162 | 164 | 164 | 163 | 163 | 164 | 160 |

**(C) Economic Expectations and Effort Taking**

| | Expected Income | | | Efforts (Goal Setting) | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Likelihood not finding any job (0-10) | Expected monthly income (conditional) | Expected monthly income ≥ 500USD | Number of sub-goals in the goal setting | Number of small goals in the goal setting |
| Treat | -0.710* | -125.726** | -0.085* | -0.782*** | -6.397*** |
| | (0.416) | (60.317) | (0.047) | (0.295) | (1.393) |
| Graduated Madrasa | -0.324 | -162.173** | -0.092* | -0.025 | -1.020 |
| | (0.510) | (65.046) | (0.050) | (0.323) | (1.873) |
| Treat × Graduated Madrasa | 0.608 | 138.002** | 0.091* | -0.027 | 4.194** |
| | (0.616) | (68.500) | (0.050) | (0.378) | (1.921) |
| $R^2$ | 0.110 | 0.190 | 0.094 | 0.202 | 0.384 |
| Mean Dep. Var. (C) | 5.810 | 238.608 | 0.038 | 3.625 | 16.175 |
| Std. Dev. Var. (C) | 2.143 | 265.295 | 0.192 | 1.236 | 7.947 |
| Observations | 163 | 163 | 163 | 165 | 165 |

| FE | Defector rehabilitation center |
|---|---|

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one month after the completion of the eight sessions. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. In Panel (A), the measure of willingness to rejoin Al-Shabaab reported in column (1) is constructed from a survey question that asks whether the respondent would consider rejoining Al-Shabaab at different proposed monthly earnings. Because the question also includes the option "I would never join Al-Shabaab," the constructed variable takes the value one if the respondent selected any reward level at which they would be willing to rejoin Al-Shabaab, and zero otherwise. The measure of support for a policy promoting and supporting defectors reported in column (2) is constructed from a survey question that asked respondents to hypothetically allocate 10USD between a policy promoting child health care in Somalia and a policy supporting defectors. The value takes the dollar amount allocated to the defector-support policy. the dependent variables in columns (3)-(8) are dummies. In Panel (B), all dependent variables are dummies. In Panel (C), the dependent variable in column (3) is a dummy. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table A.6: Heterogeneous Treatment Effects on Main Survey-Based Outcomes by Years of Education

**(A) Attitudes toward Al-Shabaab, Extremism, and Violence**

| | Al-Shabaab | | | Islamic and Violent Extremism | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Willing to rejoin AS depending on rewards | Support a policy that promoting defection and supports defectors (0-10) | Existence of Al-Shabaab is justifiable to stabilize local communities | I would stay alone if I need to interact with non-Muslims | I would stay alone if I need to interact with foreigners | Forcing someone to convert to your religion is justified | There are ways to solve problems rather than using violence | Fighting is the only form of Jihad |
| Treat | -0.089 | -0.498 | -0.175 | -0.023 | -0.147 | -0.035 | -0.193*** | -0.071 |
| | (0.076) | (0.541) | (0.106) | (0.070) | (0.090) | (0.068) | (0.065) | (0.069) |
| Years of Education | -0.002 | 0.118** | 0.014 | -0.011* | -0.038*** | -0.002 | 0.004 | -0.006 |
| | (0.013) | (0.058) | (0.013) | (0.006) | (0.012) | (0.008) | (0.006) | (0.007) |
| Treat × Years of Education | 0.001 | -0.146 | -0.003 | 0.022 | 0.035** | 0.017 | -0.013 | 0.017 |
| | (0.016) | (0.105) | (0.021) | (0.016) | (0.016) | (0.016) | (0.015) | (0.016) |
| $R^2$ | 0.241 | 0.184 | 0.099 | 0.207 | 0.306 | 0.193 | 0.226 | 0.099 |
| Mean Dep. Var. (C) | 0.203 | 7.833 | 0.465 | 0.153 | 0.338 | 0.169 | 0.959 | 0.167 |
| Std. Dev. Var. (C) | 0.405 | 2.164 | 0.502 | 0.362 | 0.476 | 0.377 | 0.200 | 0.375 |
| Observations | 125 | 117 | 142 | 143 | 145 | 142 | 145 | 142 |

**(B) Prosocial Attitudes**

| | General | | | | | Peacebuilding | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Concrete roles within my family and communities | Concrete roles within society at large | Willing to help people in need | Expect financial rewards for contributions to society | Quiet life rather than becoming a role model | Feel myself valuable in peacebuilding | Would like to apologize to victims |
| Treat | -0.070* | -0.081 | 0.022 | -0.184* | -0.096 | 0.002 | -0.037 |
| | (0.036) | (0.077) | (0.027) | (0.094) | (0.095) | (0.061) | (0.061) |
| Years of Education | -0.002 | -0.005 | 0.004 | -0.004 | -0.010 | 0.009 | 0.008 |
| | (0.004) | (0.011) | (0.004) | (0.016) | (0.014) | (0.008) | (0.008) |
| Treat × Years of Education | 0.005 | -0.003 | -0.012 | -0.005 | 0.013 | -0.021 | -0.005 |
| | (0.007) | (0.019) | (0.007) | (0.019) | (0.019) | (0.014) | (0.015) |
| $R^2$ | 0.046 | 0.055 | 0.038 | 0.304 | 0.243 | 0.205 | 0.311 |
| Mean Dep. Var. (C) | 0.986 | 0.865 | 0.986 | 0.662 | 0.527 | 0.892 | 0.836 |
| Std. Dev. Var. (C) | 0.117 | 0.344 | 0.116 | 0.476 | 0.503 | 0.313 | 0.373 |
| Observations | 145 | 147 | 147 | 146 | 146 | 147 | 143 |

**(C) Economic Expectations and Effort Taking**

| | Expected Income | | | Efforts (Goal Setting) | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Likelihood not finding any job (0-10) | Expected monthly income (conditional) | Expected monthly income ≥ 500USD | Number of sub-goals in the goal setting | Number of small goals in the goal setting |
| Treat | -0.848** | -128.191** | -0.056 | -0.606** | -5.522*** |
| | (0.391) | (54.624) | (0.038) | (0.259) | (1.367) |
| Years of Education | -0.086 | -14.014* | -0.003 | 0.111*** | 0.372* |
| | (0.056) | (8.054) | (0.006) | (0.038) | (0.205) |
| Treat × Years of Education | 0.103 | 23.102*** | 0.004 | -0.071 | 0.331 |
| | (0.085) | (8.575) | (0.006) | (0.064) | (0.472) |
| $R^2$ | 0.037 | 0.177 | 0.049 | 0.275 | 0.446 |
| Mean Dep. Var. (C) | 5.649 | 246.622 | 0.041 | 3.680 | 16.707 |
| Std. Dev. Var. (C) | 2.057 | 274.028 | 0.199 | 1.275 | 7.812 |
| Observations | 146 | 146 | 146 | 148 | 148 |

| FE | Defector rehabilitation center |
|---|---|

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one month after the completion of the eight sessions. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. In Panel (A), the measure of willingness to rejoin Al-Shabaab reported in column (1) is constructed from a survey question that asks whether the respondent would consider rejoining Al-Shabaab at different proposed monthly earnings. Because the question also includes the option "I would never join Al-Shabaab," the constructed variable takes the value one if the respondent selected any reward level at which they would be willing to rejoin Al-Shabaab, and zero otherwise. The measure of support for a policy promoting and supporting defectors reported in column (2) is constructed from a survey question that asked respondents to hypothetically allocate 10USD between a policy promoting child health care in Somalia and a policy supporting defectors. The value takes the dollar amount allocated to the defector-support policy. the dependent variables in columns (3)-(8) are dummies. In Panel (B), all dependent variables are dummies. In Panel (C), the dependent variable in column (3) is a dummy. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table A.7: Heterogeneous Treatment Effects on Main Survey-Based Outcomes by Arabic Literacy

**(A) Attitudes toward Al-Shabaab, Extremism, and Violence**

| | Al-Shabaab | | | Islamic and Violent Extremism | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Willing to rejoin AS depending on rewards | Support a policy that promoting defection and supports defectors (0-10) | Existence of Al-Shabaab is justifiable to stabilize local communities | I would stay alone if I need to interact with non-Muslims | I would stay alone if I need to interact with foreigners | Forcing someone to convert to your religion is justified | There are ways to solve problems rather than using violence | Fighting is the only form of Jihad |
| Treat | -0.196*** | -0.252 | -0.082 | 0.107 | -0.014 | 0.177** | -0.300*** | 0.033 |
| | (0.068) | (0.374) | (0.080) | (0.067) | (0.079) | (0.069) | (0.070) | (0.056) |
| Arabic Literacy | -0.022 | 0.986** | 0.071 | 0.170** | -0.156 | 0.155* | -0.050 | 0.107 |
| | (0.090) | (0.474) | (0.099) | (0.083) | (0.104) | (0.091) | (0.068) | (0.080) |
| Treat × Arabic Literacy | 0.062 | -1.884** | -0.221* | -0.040 | 0.099 | -0.149 | 0.150 | -0.023 |
| | (0.111) | (0.739) | (0.133) | (0.118) | (0.127) | (0.118) | (0.114) | (0.112) |
| $R^2$ | 0.208 | 0.201 | 0.149 | 0.176 | 0.221 | 0.274 | 0.267 | 0.073 |
| Mean Dep. Var. (C) | 0.270 | 7.395 | 0.380 | 0.161 | 0.316 | 0.207 | 0.872 | 0.129 |
| Std. Dev. Var. (C) | 0.446 | 2.317 | 0.488 | 0.370 | 0.467 | 0.407 | 0.335 | 0.337 |
| Observations | 166 | 159 | 185 | 185 | 187 | 185 | 188 | 185 |

**(B) Prosocial Attitudes**

| | General | | | | | Peacebuilding | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Concrete roles within my family and communities | Concrete roles within society at large | Willing to help people in need | Expect financial rewards for contributions to society | Quiet life rather than becoming a role model | Feel myself valuable in peacebuilding | Would like to apologize to victims |
| Treat | -0.046 | -0.034 | 0.001 | -0.134** | -0.037 | 0.017 | -0.097 |
| | (0.028) | (0.062) | (0.024) | (0.062) | (0.081) | (0.054) | (0.070) |
| Arabic Literacy | -0.015 | -0.074 | 0.021 | -0.030 | 0.091 | 0.093* | 0.077 |
| | (0.029) | (0.080) | (0.017) | (0.102) | (0.101) | (0.056) | (0.071) |
| Treat × Arabic Literacy | -0.012 | -0.091 | -0.030 | -0.039 | -0.053 | -0.169** | -0.016 |
| | (0.062) | (0.119) | (0.037) | (0.122) | (0.134) | (0.084) | (0.107) |
| $R^2$ | 0.064 | 0.065 | 0.018 | 0.450 | 0.245 | 0.225 | 0.235 |
| Mean Dep. Var. (C) | 0.989 | 0.863 | 0.989 | 0.516 | 0.474 | 0.905 | 0.840 |
| Std. Dev. Var. (C) | 0.103 | 0.346 | 0.103 | 0.502 | 0.502 | 0.294 | 0.368 |
| Observations | 188 | 190 | 190 | 189 | 189 | 190 | 186 |

**(C) Economic Expectations and Effort Taking**

| | Expected Income | | | Efforts (Goal Setting) | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Likelihood not finding any job (0-10) | Expected monthly income (conditional) | Expected monthly income ≥ 500USD | Number of sub-goals in the goal setting | Number of small goals in the goal setting |
| Treat | 0.057 | -74.307* | -0.035 | -0.671*** | -3.092*** |
| | (0.356) | (37.911) | (0.024) | (0.200) | (0.928) |
| Arabic Literacy | 0.632 | -43.460 | -0.011 | 0.489* | 2.305 |
| | (0.490) | (49.569) | (0.039) | (0.263) | (1.511) |
| Treat × Arabic Literacy | -0.699 | 99.014* | 0.006 | -0.226 | -1.440 |
| | (0.616) | (51.868) | (0.038) | (0.356) | (1.987) |
| $R^2$ | 0.090 | 0.140 | 0.045 | 0.220 | 0.381 |
| Mean Dep. Var. (C) | 5.811 | 227.368 | 0.032 | 3.474 | 15.041 |
| Std. Dev. Var. (C) | 2.189 | 247.838 | 0.176 | 1.276 | 7.789 |
| Observations | 189 | 189 | 189 | 192 | 192 |

| FE | Defector rehabilitation center |
|---|---|

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one month after the completion of the eight sessions. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. In Panel (A), the measure of willingness to rejoin Al-Shabaab reported in column (1) is constructed from a survey question that asks whether the respondent would consider rejoining Al-Shabaab at different proposed monthly earnings. Because the question also includes the option "I would never join Al-Shabaab," the constructed variable takes the value one if the respondent selected any reward level at which they would be willing to rejoin Al-Shabaab, and zero otherwise. The measure of support for a policy promoting and supporting defectors reported in column (2) is constructed from a survey question that asked respondents to hypothetically allocate 10USD between a policy promoting child health care in Somalia and a policy supporting defectors. The value takes the dollar amount allocated to the defector-support policy. the dependent variables in columns (3)-(8) are dummies. In Panel (B), all dependent variables are dummies. In Panel (C), the dependent variable in column (3) is a dummy. The Arabic Literacy variable takes 1 if one can read *and* write Arabic. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table A.8: Heterogeneous Treatment Effects on Main Survey-Based Outcomes by Somali Literacy

**(A) Attitudes toward Al-Shabaab, Extremism, and Violence**

| | Al-Shabaab | | | Islamic and Violent Extremism | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Willing to rejoin AS depending on rewards | Support a policy that promoting defection and supports defectors (0-10) | Existence of Al-Shabaab is justifiable to stabilize local communities | I would stay alone if I need to interact with non-Muslims | I would stay alone if I need to interact with foreigners | Forcing someone to convert to your religion is justified | There are ways to solve problems rather than using violence | Fighting is the only form of Jihad |
| Treat | -0.146 | -0.742 | -0.217** | 0.016 | -0.121 | 0.148 | -0.332*** | 0.086 |
| | (0.095) | (0.494) | (0.103) | (0.091) | (0.105) | (0.091) | (0.094) | (0.074) |
| Somali Literacy | 0.021 | 0.415 | -0.031 | -0.072 | -0.177* | 0.004 | -0.071 | 0.044 |
| | (0.097) | (0.479) | (0.094) | (0.079) | (0.105) | (0.091) | (0.071) | (0.068) |
| Treat × Somali Literacy | -0.044 | -0.174 | 0.087 | 0.133 | 0.218* | -0.035 | 0.139 | -0.093 |
| | (0.117) | (0.687) | (0.134) | (0.117) | (0.130) | (0.119) | (0.117) | (0.099) |
| $R^2$ | 0.207 | 0.167 | 0.136 | 0.152 | 0.224 | 0.262 | 0.265 | 0.061 |
| Mean Dep. Var. (C) | 0.270 | 7.395 | 0.380 | 0.161 | 0.316 | 0.207 | 0.872 | 0.129 |
| Std. Dev. Var. (C) | 0.446 | 2.317 | 0.488 | 0.370 | 0.467 | 0.407 | 0.335 | 0.337 |
| Observations | 166 | 159 | 185 | 185 | 187 | 185 | 188 | 185 |

**(B) Prosocial Attitudes**

| | General | | | | | Peacebuilding | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Concrete roles within my family and communities | Concrete roles within society at large | Willing to help people in need | Expect financial rewards for contributions to society | Quiet life rather than becoming a role model | Feel myself valuable in peacebuilding | Would like to apologize to victims |
| Treat | -0.069 | -0.186** | -0.021 | -0.095 | -0.005 | 0.039 | -0.091 |
| | (0.044) | (0.085) | (0.026) | (0.087) | (0.113) | (0.068) | (0.088) |
| Somali Literacy | -0.005 | -0.115* | -0.012 | -0.010 | 0.058 | 0.068 | -0.054 |
| | (0.017) | (0.065) | (0.015) | (0.087) | (0.100) | (0.063) | (0.076) |
| Treat × Somali Literacy | 0.029 | 0.178 | 0.017 | -0.092 | -0.077 | -0.132 | -0.021 |
| | (0.058) | (0.111) | (0.035) | (0.109) | (0.139) | (0.089) | (0.110) |
| $R^2$ | 0.063 | 0.052 | 0.015 | 0.452 | 0.242 | 0.218 | 0.234 |
| Mean Dep. Var. (C) | 0.989 | 0.863 | 0.989 | 0.516 | 0.474 | 0.905 | 0.840 |
| Std. Dev. Var. (C) | 0.103 | 0.346 | 0.103 | 0.502 | 0.502 | 0.294 | 0.368 |
| Observations | 188 | 190 | 190 | 189 | 189 | 190 | 186 |

**(C) Economic Expectations and Effort Taking**

| | Expected Income | | | Efforts (Goal Setting) | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Likelihood not finding any job (0-10) | Expected monthly income (conditional) | Expected monthly income ≥ 500USD | Number of sub-goals in the goal setting | Number of small goals in the goal setting |
| Treat | -0.377 | -22.002 | -0.005 | -0.913*** | -3.065** |
| | (0.489) | (30.309) | (0.006) | (0.284) | (1.335) |
| Somali Literacy | 0.006 | 57.943 | 0.047* | -0.080 | 0.706 |
| | (0.489) | (40.935) | (0.027) | (0.292) | (1.468) |
| Treat × Somali Literacy | 0.310 | -21.829 | -0.043* | 0.279 | -0.738 |
| | (0.623) | (45.981) | (0.025) | (0.362) | (1.736) |
| $R^2$ | 0.082 | 0.138 | 0.060 | 0.203 | 0.371 |
| Mean Dep. Var. (C) | 5.811 | 227.368 | 0.032 | 3.474 | 15.041 |
| Std. Dev. Var. (C) | 2.189 | 247.838 | 0.176 | 1.276 | 7.789 |
| Observations | 189 | 189 | 189 | 192 | 192 |

| FE | Defector rehabilitation center |
|---|---|

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one month after the completion of the eight sessions. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. In Panel (A), the measure of willingness to rejoin Al-Shabaab reported in column (1) is constructed from a survey question that asks whether the respondent would consider rejoining Al-Shabaab at different proposed monthly earnings. Because the question also includes the option "I would never join Al-Shabaab," the constructed variable takes the value one if the respondent selected any reward level at which they would be willing to rejoin Al-Shabaab, and zero otherwise. The measure of support for a policy promoting and supporting defectors reported in column (2) is constructed from a survey question that asked respondents to hypothetically allocate 10USD between a policy promoting child health care in Somalia and a policy supporting defectors. The value takes the dollar amount allocated to the defector-support policy. the dependent variables in columns (3)-(8) are dummies. In Panel (B), all dependent variables are dummies. In Panel (C), the dependent variable in column (3) is a dummy. The Somali Literacy variable takes 1 if one can read *and* write Somali. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table A.9: Heterogeneous Treatment Effects on Main Survey-Based Outcomes by Years in Al-Shabaab

**(A) Attitudes toward Al-Shabaab, Extremism, and Violence**

| | Al-Shabaab | | | Islamic and Violent Extremism | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Willing to rejoin AS depending on rewards | Support a policy that promoting defection and supports defectors (0-10) | Existence of Al-Shabaab is justifiable to stabilize local communities | I would stay alone if I need to interact with non-Muslims | I would stay alone if I need to interact with foreigners | Forcing someone to convert to your religion is justified | There are ways to solve problems rather than using violence | Fighting is the only form of Jihad |
| Treat | -0.125 | -1.084** | -0.203** | 0.143 | 0.033 | 0.137 | -0.228** | 0.004 |
| | (0.093) | (0.539) | (0.102) | (0.091) | (0.099) | (0.094) | (0.097) | (0.080) |
| Years in Al-Shabaab | 0.006 | -0.080 | -0.016 | 0.007 | -0.001 | 0.009 | 0.000 | 0.001 |
| | (0.014) | (0.082) | (0.012) | (0.012) | (0.016) | (0.015) | (0.013) | (0.011) |
| Treat × Years in Al-Shabaab | -0.007 | 0.063 | 0.009 | -0.011 | -0.004 | -0.005 | -0.002 | 0.001 |
| | (0.016) | (0.108) | (0.015) | (0.016) | (0.018) | (0.017) | (0.018) | (0.015) |
| $R^2$ | 0.197 | 0.145 | 0.150 | 0.133 | 0.202 | 0.234 | 0.265 | 0.055 |
| Mean Dep. Var. (C) | 0.259 | 7.312 | 0.375 | 0.170 | 0.311 | 0.216 | 0.865 | 0.135 |
| Std. Dev. Var. (C) | 0.441 | 2.341 | 0.487 | 0.378 | 0.466 | 0.414 | 0.343 | 0.343 |
| Observations | 157 | 149 | 175 | 174 | 176 | 175 | 177 | 175 |

**(B) Prosocial Attitudes**

| | General | | | | | Peacebuilding | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Concrete roles within my family and communities | Concrete roles within society at large | Willing to help people in need | Expect financial rewards for contributions to society | Quiet life rather than becoming a role model | Feel myself valuable in peacebuilding | Would like to apologize to victims |
| Treat | -0.055 | -0.129 | -0.001 | -0.237*** | 0.013 | 0.001 | -0.007 |
| | (0.044) | (0.091) | (0.018) | (0.086) | (0.106) | (0.064) | (0.085) |
| Years in Al-Shabaab | -0.008 | -0.007 | -0.000 | -0.018 | -0.002 | 0.014* | 0.005 |
| | (0.007) | (0.012) | (0.001) | (0.012) | (0.014) | (0.007) | (0.013) |
| Treat × Years in Al-Shabaab | 0.001 | 0.006 | -0.004 | 0.021 | -0.009 | -0.016 | -0.021 |
| | (0.010) | (0.016) | (0.005) | (0.014) | (0.017) | (0.010) | (0.017) |
| $R^2$ | 0.088 | 0.045 | 0.046 | 0.447 | 0.239 | 0.231 | 0.226 |
| Mean Dep. Var. (C) | 0.989 | 0.878 | 1.000 | 0.500 | 0.467 | 0.922 | 0.844 |
| Std. Dev. Var. (C) | 0.106 | 0.329 | 0.000 | 0.503 | 0.502 | 0.269 | 0.364 |
| Observations | 177 | 179 | 179 | 178 | 178 | 179 | 176 |

**(C) Economic Expectations and Effort Taking**

| | Expected Income | | | Efforts (Goal Setting) | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Likelihood not finding any job (0-10) | Expected monthly income (conditional) | Expected monthly income ≥ 500USD | Number of sub-goals in the goal setting | Number of small goals in the goal setting |
| Treat | -0.670 | -12.933 | 0.003 | -0.964*** | -3.995*** |
| | (0.497) | (40.420) | (0.028) | (0.263) | (1.529) |
| Years in Al-Shabaab | -0.025 | 7.625 | 0.009 | -0.001 | -0.086 |
| | (0.073) | (7.812) | (0.008) | (0.043) | (0.193) |
| Treat × Years in Al-Shabaab | 0.092 | -7.205 | -0.008 | 0.032 | 0.030 |
| | (0.085) | (8.207) | (0.008) | (0.050) | (0.237) |
| $R^2$ | 0.076 | 0.137 | 0.076 | 0.230 | 0.384 |
| Mean Dep. Var. (C) | 5.822 | 232.778 | 0.033 | 3.500 | 15.163 |
| Std. Dev. Var. (C) | 2.231 | 253.200 | 0.181 | 1.280 | 7.856 |
| Observations | 178 | 178 | 178 | 181 | 181 |

| FE | Defector rehabilitation center |
|---|---|

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one month after the completion of the eight sessions. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. In Panel (A), the measure of willingness to rejoin Al-Shabaab reported in column (1) is constructed from a survey question that asks whether the respondent would consider rejoining Al-Shabaab at different proposed monthly earnings. Because the question also includes the option "I would never join Al-Shabaab," the constructed variable takes the value one if the respondent selected any reward level at which they would be willing to rejoin Al-Shabaab, and zero otherwise. The measure of support for a policy promoting and supporting defectors reported in column (2) is constructed from a survey question that asked respondents to hypothetically allocate 10USD between a policy promoting child health care in Somalia and a policy supporting defectors. The value takes the dollar amount allocated to the defector-support policy. the dependent variables in columns (3)-(8) are dummies. In Panel (B), all dependent variables are dummies. In Panel (C), the dependent variable in column (3) is a dummy. $^*$ $p < 0.1$, $^{**}$ $p < 0.05$, $^{***}$ $p < 0.01$.

Table A.10: Heterogeneous Treatment Effects on Main Survey-Based Outcomes by Voluntary Joining in Al-Shabaab

**(A) Attitudes toward Al-Shabaab, Extremism, and Violence**

| | Al-Shabaab | | | Islamic and Violent Extremism | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Willing to rejoin AS depending on rewards | Support a policy that promoting defection and supports defectors (0-10) | Existence of Al-Shabaab is justifiable to stabilize local communities | I would stay alone if I need to interact with non-Muslims | I would stay alone if I need to interact with foreigners | Forcing someone to convert to your religion is justified | There are ways to solve problems rather than using violence | Fighting is the only form of Jihad |
| Treat | -0.195*** | -0.666 | -0.157* | 0.069 | -0.033 | 0.176** | -0.178** | 0.021 |
| | (0.065) | (0.414) | (0.084) | (0.081) | (0.081) | (0.076) | (0.070) | (0.070) |
| Voluntarily joined AS | -0.060 | -0.102 | 0.035 | 0.043 | 0.016 | 0.168* | 0.097 | 0.070 |
| | (0.090) | (0.528) | (0.105) | (0.077) | (0.110) | (0.088) | (0.061) | (0.083) |
| Treat × Voluntarily joined AS | 0.127 | -0.648 | -0.033 | -0.005 | 0.110 | -0.207* | -0.191* | -0.048 |
| | (0.113) | (0.724) | (0.140) | (0.112) | (0.131) | (0.115) | (0.111) | (0.109) |
| $R^2$ | 0.212 | 0.168 | 0.134 | 0.140 | 0.242 | 0.308 | 0.286 | 0.064 |
| Mean Dep. Var. (C) | 0.235 | 7.575 | 0.393 | 0.165 | 0.322 | 0.214 | 0.895 | 0.141 |
| Std. Dev. Var. (C) | 0.426 | 2.217 | 0.491 | 0.373 | 0.470 | 0.413 | 0.308 | 0.350 |
| Observations | 153 | 145 | 171 | 171 | 173 | 171 | 174 | 171 |

**(B) Prosocial Attitudes**

| | General | | | | | Peacebuilding | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Concrete roles within my family and communities | Concrete roles within society at large | Willing to help people in need | Expect financial rewards for contributions to society | Quiet life rather than becoming a role model | Feel myself valuable in peacebuilding | Would like to apologize to victims |
| Treat | -0.078** | -0.157** | -0.020 | -0.111* | -0.006 | -0.044 | -0.152** |
| | (0.038) | (0.072) | (0.020) | (0.066) | (0.083) | (0.055) | (0.076) |
| Voluntarily joined AS | -0.003 | -0.096 | -0.024 | -0.020 | 0.053 | -0.027 | -0.057 |
| | (0.031) | (0.084) | (0.033) | (0.107) | (0.102) | (0.068) | (0.083) |
| Treat × Voluntarily joined AS | 0.057 | 0.227* | 0.027 | -0.097 | -0.118 | -0.003 | 0.144 |
| | (0.061) | (0.117) | (0.046) | (0.127) | (0.136) | (0.095) | (0.109) |
| $R^2$ | 0.069 | 0.067 | 0.017 | 0.424 | 0.261 | 0.204 | 0.255 |
| Mean Dep. Var. (C) | 0.988 | 0.862 | 0.989 | 0.552 | 0.483 | 0.897 | 0.837 |
| Std. Dev. Var. (C) | 0.108 | 0.347 | 0.107 | 0.500 | 0.503 | 0.306 | 0.371 |
| Observations | 174 | 176 | 176 | 175 | 175 | 176 | 172 |

**(C) Economic Expectations and Effort Taking**

| | Expected Income | | | Efforts (Goal Setting) | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Likelihood not finding any job (0-10) | Expected monthly income (conditional) | Expected monthly income ≥ 500USD | Number of sub-goals in the goal setting | Number of small goals in the goal setting |
| Treat | -0.164 | 33.217 | -0.001 | -0.595** | -2.896** |
| | (0.386) | (20.930) | (0.003) | (0.237) | (1.287) |
| Voluntarily joined AS | -0.366 | 133.626** | 0.085* | 0.115 | 1.248 |
| | (0.488) | (62.143) | (0.047) | (0.292) | (1.573) |
| Treat × Voluntarily joined AS | -0.163 | -191.959*** | -0.092* | -0.539 | -2.931 |
| | (0.617) | (69.432) | (0.051) | (0.359) | (1.931) |
| $R^2$ | 0.093 | 0.187 | 0.093 | 0.235 | 0.391 |
| Mean Dep. Var. (C) | 5.805 | 232.759 | 0.034 | 3.557 | 15.670 |
| Std. Dev. Var. (C) | 2.183 | 257.202 | 0.184 | 1.267 | 7.815 |
| Observations | 175 | 175 | 175 | 177 | 177 |

| FE | Defector rehabilitation center |
|---|---|

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one month after the completion of the eight sessions. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. In Panel (A), the measure of willingness to rejoin Al-Shabaab reported in column (1) is constructed from a survey question that asks whether the respondent would consider rejoining Al-Shabaab at different proposed monthly earnings. Because the question also includes the option "I would never join Al-Shabaab," the constructed variable takes the value one if the respondent selected any reward level at which they would be willing to rejoin Al-Shabaab, and zero otherwise. The measure of support for a policy promoting and supporting defectors reported in column (2) is constructed from a survey question that asked respondents to hypothetically allocate 10USD between a policy promoting child health care in Somalia and a policy supporting defectors. The value takes the dollar amount allocated to the defector-support policy. the dependent variables in columns (3)-(8) are dummies. In Panel (B), all dependent variables are dummies. In Panel (C), the dependent variable in column (3) is a dummy. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.11: Heterogeneous Treatment Effects on Main Survey-Based Outcomes by Forced/Coerced/Abducted/Threatened Joining in Al-Shabaab

**(A) Attitudes toward Al-Shabaab, Extremism, and Violence**

| | Al-Shabaab | | | Islamic and Violent Extremism | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Willing to rejoin AS depending on rewards | Support a policy that promoting defection and supports defectors (0-10) | Existence of Al-Shabaab is justifiable to stabilize local communities | I would stay alone if I need to interact with non-Muslims | I would stay alone if I need to interact with foreigners | Forcing someone to convert to your religion is justified | There are ways to solve problems rather than using violence | Fighting is the only form of Jihad |
| Treat | -0.139** | -1.141*** | -0.188** | 0.052 | 0.017 | 0.088 | -0.300*** | -0.012 |
| | (0.063) | (0.396) | (0.075) | (0.058) | (0.069) | (0.061) | (0.057) | (0.056) |
| Forced to join AS | 0.025 | -0.897* | 0.030 | 0.003 | 0.042 | 0.107 | -0.251** | -0.023 |
| | (0.114) | (0.526) | (0.112) | (0.127) | (0.125) | (0.134) | (0.109) | (0.099) |
| Treat × Forced to join AS | -0.038 | 0.866 | 0.144 | 0.119 | 0.007 | 0.088 | 0.238 | 0.117 |
| | (0.119) | (0.704) | (0.170) | (0.206) | (0.187) | (0.180) | (0.154) | (0.174) |
| $R^2$ | 0.205 | 0.165 | 0.141 | 0.142 | 0.235 | 0.305 | 0.298 | 0.064 |
| Mean Dep. Var. (C) | 0.235 | 7.575 | 0.393 | 0.165 | 0.322 | 0.214 | 0.895 | 0.141 |
| Std. Dev. Var. (C) | 0.426 | 2.217 | 0.491 | 0.373 | 0.470 | 0.413 | 0.308 | 0.350 |
| Observations | 153 | 145 | 171 | 171 | 173 | 171 | 174 | 171 |

**(B) Prosocial Attitudes**

| | General | | | | | Peacebuilding | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Concrete roles within my family and communities | Concrete roles within society at large | Willing to help people in need | Expect financial rewards for contributions to society | Quiet life rather than becoming a role model | Feel myself valuable in peacebuilding | Would like to apologize to victims |
| Treat | -0.060* | -0.048 | -0.011 | -0.145** | -0.074 | -0.050 | -0.124** |
| | (0.033) | (0.065) | (0.022) | (0.068) | (0.075) | (0.053) | (0.055) |
| Forced to join AS | -0.008 | 0.139** | 0.005 | 0.119 | -0.076 | 0.007 | -0.137 |
| | (0.016) | (0.056) | (0.013) | (0.074) | (0.117) | (0.069) | (0.116) |
| Treat × Forced to join AS | 0.047 | -0.056 | 0.008 | -0.024 | 0.129 | 0.030 | 0.184 |
| | (0.033) | (0.102) | (0.019) | (0.126) | (0.149) | (0.100) | (0.185) |
| $R^2$ | 0.062 | 0.056 | 0.013 | 0.423 | 0.260 | 0.203 | 0.256 |
| Mean Dep. Var. (C) | 0.988 | 0.862 | 0.989 | 0.552 | 0.483 | 0.897 | 0.837 |
| Std. Dev. Var. (C) | 0.108 | 0.347 | 0.107 | 0.500 | 0.503 | 0.306 | 0.371 |
| Observations | 174 | 176 | 176 | 175 | 175 | 176 | 172 |

**(C) Economic Expectations and Effort Taking**

| | Expected Income | | | Efforts (Goal Setting) | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Likelihood not finding any job (0-10) | Expected monthly income (conditional) | Expected monthly income ≥ 500USD | Number of sub-goals in the goal setting | Number of small goals in the goal setting |
| Treat | -0.269 | -66.398* | -0.044* | -0.858*** | -4.561*** |
| | (0.341) | (35.696) | (0.025) | (0.208) | (1.150) |
| Forced to join AS | 0.512 | -75.908** | -0.033* | -0.126 | -1.192 |
| | (0.583) | (36.563) | (0.019) | (0.249) | (1.118) |
| Treat × Forced to join AS | 0.291 | 157.491*** | 0.053* | 0.193 | 2.986 |
| | (0.780) | (53.246) | (0.030) | (0.393) | (2.154) |
| $R^2$ | 0.094 | 0.146 | 0.052 | 0.221 | 0.387 |
| Mean Dep. Var. (C) | 5.805 | 232.759 | 0.034 | 3.557 | 15.670 |
| Std. Dev. Var. (C) | 2.183 | 257.202 | 0.184 | 1.267 | 7.815 |
| Observations | 175 | 175 | 175 | 177 | 177 |

| FE | Defector rehabilitation center |
|---|---|

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one month after the completion of the eight sessions. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. In Panel (A), the measure of willingness to rejoin Al-Shabaab reported in column (1) is constructed from a survey question that asks whether the respondent would consider rejoining Al-Shabaab at different proposed monthly earnings. Because the question also includes the option "I would never join Al-Shabaab," the constructed variable takes the value one if the respondent selected any reward level at which they would be willing to rejoin Al-Shabaab, and zero otherwise. The measure of support for a policy promoting and supporting defectors reported in column (2) is constructed from a survey question that asked respondents to hypothetically allocate 10USD between a policy promoting child health care in Somalia and a policy supporting defectors. The value takes the dollar amount allocated to the defector-support policy. the dependent variables in columns (3)-(8) are dummies. In Panel (B), all dependent variables are dummies. In Panel (C), the dependent variable in column (3) is a dummy. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.12: Heterogeneous Treatment Effects on Main Survey-Based Outcomes by Invited Joining in Al-Shabaab

**(A) Attitudes toward Al-Shabaab, Extremism, and Violence**

| | Al-Shabaab | | | Islamic and Violent Extremism | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Willing to rejoin AS depending on rewards | Support a policy that promoting defection and supports defectors (0-10) | Existence of Al-Shabaab is justifiable to stabilize local communities | I would stay alone if I need to interact with non-Muslims | I would stay alone if I need to interact with foreigners | Forcing someone to convert to your religion is justified | There are ways to solve problems rather than using violence | Fighting is the only form of Jihad |
| Treat | -0.151** | -0.921** | -0.061 | 0.144** | 0.106 | 0.109 | -0.266*** | 0.072 |
| | (0.064) | (0.417) | (0.078) | (0.068) | (0.074) | (0.069) | (0.069) | (0.062) |
| Invited to join AS | -0.024 | 0.649 | 0.212* | 0.071 | 0.199* | -0.036 | 0.047 | 0.089 |
| | (0.095) | (0.448) | (0.110) | (0.095) | (0.118) | (0.101) | (0.065) | (0.091) |
| Treat × Invited to join AS | 0.021 | -0.231 | -0.383*** | -0.258** | -0.321** | -0.046 | 0.036 | -0.240** |
| | (0.121) | (0.759) | (0.145) | (0.125) | (0.138) | (0.126) | (0.113) | (0.111) |
| $R^2$ | 0.205 | 0.165 | 0.168 | 0.164 | 0.259 | 0.295 | 0.279 | 0.085 |
| Mean Dep. Var. (C) | 0.235 | 7.575 | 0.393 | 0.165 | 0.322 | 0.214 | 0.895 | 0.141 |
| Std. Dev. Var. (C) | 0.426 | 2.217 | 0.491 | 0.373 | 0.470 | 0.413 | 0.308 | 0.350 |
| Observations | 153 | 145 | 171 | 171 | 173 | 171 | 174 | 171 |

**(B) Prosocial Attitudes**

| | General | | | | | Peacebuilding | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Concrete roles within my family and communities | Concrete roles within society at large | Willing to help people in need | Expect financial rewards for contributions to society | Quiet life rather than becoming a role model | Feel myself valuable in peacebuilding | Would like to apologize to victims |
| Treat | -0.015 | -0.044 | 0.000 | -0.147** | -0.037 | -0.061 | -0.045 |
| | (0.028) | (0.063) | (0.022) | (0.070) | (0.077) | (0.052) | (0.065) |
| Invited to join AS | 0.012 | -0.048 | 0.015 | 0.032 | 0.133 | -0.098 | 0.083 |
| | (0.018) | (0.090) | (0.016) | (0.100) | (0.113) | (0.083) | (0.072) |
| Treat × Invited to join AS | -0.131* | -0.061 | -0.038 | -0.028 | -0.064 | 0.055 | -0.170 |
| | (0.076) | (0.130) | (0.045) | (0.130) | (0.146) | (0.104) | (0.113) |
| $R^2$ | 0.098 | 0.055 | 0.017 | 0.418 | 0.266 | 0.212 | 0.256 |
| Mean Dep. Var. (C) | 0.988 | 0.862 | 0.989 | 0.552 | 0.483 | 0.897 | 0.837 |
| Std. Dev. Var. (C) | 0.108 | 0.347 | 0.107 | 0.500 | 0.503 | 0.306 | 0.371 |
| Observations | 174 | 176 | 176 | 175 | 175 | 176 | 172 |

**(C) Economic Expectations and Effort Taking**

| | Expected Income | | | Efforts (Goal Setting) | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Likelihood not finding any job (0-10) | Expected monthly income (conditional) | Expected monthly income ≥ 500USD | Number of sub-goals in the goal setting | Number of small goals in the goal setting |
| Treat | -0.141 | -64.695* | -0.048* | -0.990*** | -5.015*** |
| | (0.339) | (38.403) | (0.027) | (0.204) | (1.002) |
| Invited to join AS | 0.133 | -77.373* | -0.048* | -0.372 | -2.454* |
| | (0.629) | (41.141) | (0.027) | (0.306) | (1.448) |
| Treat × Invited to join AS | -0.412 | 81.816* | 0.044* | 0.584 | 3.236 |
| | (0.727) | (46.421) | (0.026) | (0.389) | (2.283) |
| $R^2$ | 0.085 | 0.141 | 0.059 | 0.232 | 0.393 |
| Mean Dep. Var. (C) | 5.805 | 232.759 | 0.034 | 3.557 | 15.670 |
| Std. Dev. Var. (C) | 2.183 | 257.202 | 0.184 | 1.267 | 7.815 |
| Observations | 175 | 175 | 175 | 177 | 177 |

| FE | Defector rehabilitation center |
|---|---|

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one month after the completion of the eight sessions. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. In Panel (A), the measure of willingness to rejoin Al-Shabaab reported in column (1) is constructed from a survey question that asks whether the respondent would consider rejoining Al-Shabaab at different proposed monthly earnings. Because the question also includes the option "I would never join Al-Shabaab," the constructed variable takes the value one if the respondent selected any reward level at which they would be willing to rejoin Al-Shabaab, and zero otherwise. The measure of support for a policy promoting and supporting defectors reported in column (2) is constructed from a survey question that asked respondents to hypothetically allocate 10USD between a policy promoting child health care in Somalia and a policy supporting defectors. The value takes the dollar amount allocated to the defector-support policy. the dependent variables in columns (3)-(8) are dummies. In Panel (B), all dependent variables are dummies. In Panel (C), the dependent variable in column (3) is a dummy. $^*$ $p < 0.1$, $^{**}$ $p < 0.05$, $^{***}$ $p < 0.01$.

## Table A.13: Treatment Effects on Personal Prospects

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | = 1:<br>Using days<br>positively<br>in DRC now | = 1:<br>Satisfied with<br>your current<br>situation | = 1:<br>Willing to<br>strive towards<br>personal goals | = 1:<br>Concrete image<br>of life<br>after leaving<br>DRC | = 1:<br>Concrete plans<br>after leaving<br>DRC | = 1:<br>Look forward<br>to leaving<br>DRC | = 1:<br>Give up<br>my goals<br>if facing<br>tough issues |
| Treat | -0.002 | -0.059 | 0.000 | -0.148** | -0.070 | -0.008 | 0.215*** |
| | (0.034) | (0.063) | (.) | (0.059) | (0.051) | (0.060) | (0.062) |
| $R^2$ | 0.013 | 0.245 | . | 0.255 | 0.119 | 0.211 | 0.217 |
| Mean Dep. Var. (C) | 0.939 | 0.573 | 1.000 | 0.724 | 0.863 | 0.684 | 0.263 |
| Std. Dev. Var. (C) | 0.241 | 0.497 | 0.000 | 0.449 | 0.346 | 0.467 | 0.443 |
| Observations | 193 | 191 | 194 | 193 | 191 | 193 | 190 |
| Romano-Wolf $p$-value | 0.995 | 0.706 | . | 0.066 | 0.485 | 0.995 | 0.006 |
| FE | | | | Defector rehabilitation center | | | |

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data were collected approximately one month after the completion of the eight sessions. The sample size slightly varies across specifications, as each outcome variable has a different number of missing observations. There is no estimate reported in column (3) due to a lack of variation, but we still present this outcome because it was pre-specified in the pre-analysis plan. The Romano-Wolf $p$-value is computed based on 1000 resamples. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table A.14: Distribution of Text-based Outcomes

| Outcome | N | Mean | Std. Dev. | Min | Q1 | Median | Max |
|---|---|---|---|---|---|---|---|
| Peacebuilder Similarity | 191 | 0.473 | 0.087 | 0.230 | 0.421 | 0.473 | 0.679 |
| Specificity Score | 191 | 0.088 | 0.096 | −0.226 | 0.023 | 0.095 | 0.277 |
| Combined (Multiplicative) | 191 | 0.047 | 0.049 | −0.068 | 0.010 | 0.047 | 0.168 |
| Explicit "Leave AS" Mention | 189 | 0.519 | 0.501 | 0.000 | 0.000 | 1.000 | 1.000 |
| Leave-AS Affirmation Score | 189 | 0.518 | 0.490 | 0.000 | 0.005 | 0.962 | 1.000 |
| Other vs. Self-regarding Tendency | 182 | -0.178 | 0.387 | −1.000 | -0.500 | 0.000 | 1.000 |

*Notes*: Distribution statistics for text-based outcomes at the individual level. Peacebuilder Similarity measures cosine similarity between survey responses ("Have you taken any new action?", "Do you wish to have any new action?", "What are the most important elements in building sustainable peace?", and "How would you like to improve your future?") and peacebuilding reference texts. Specificity Score is the difference between similarity to specific and vague reference texts. Combined (Multiplicative) is the product of Peacebuilder Similarity and Specificity Score. Explicit "Leave AS" Mention is a binary indicator for explicit leave/quit/defect language in a question asking what message the respondent would send as an anonymous message to an individual who currently belongs to Al-Shabaab. Leave-AS Affirmation Score is a model-based probability score trained on the AS leave-indicator labels. Other vs. Self-regarding Tendency is the difference between the share of goal-setting entries classified as other-oriented and self-oriented.

## Table A.15: Goal-Setting Orientation and Word Count

| | (1)<br>Total<br>Word Count<br>(All Goals) | (2)<br>Other-regarding<br>Share<br>(Subgoals) | (3)<br>Self-regarding<br>Share<br>(Subgoals) | (4)<br>Other-regarding<br>Share<br>(Small Goals) | (5)<br>Self-regarding<br>Share<br>(Small Goals) | (6)<br>Other-regarding<br>Share<br>(All Goals) | (7)<br>Self-regarding<br>Share<br>(All Goals) |
|---|---|---|---|---|---|---|---|
| Treat | -11.949*** | -0.029 | -0.140*** | -0.003 | -0.047** | -0.007 | -0.064*** |
| | ( 2.961) | ( 0.036) | ( 0.051) | ( 0.020) | ( 0.022) | ( 0.019) | ( 0.022) |
| $R^2$ | 0.298 | 0.005 | 0.090 | 0.052 | 0.046 | 0.047 | 0.054 |
| Mean Dep. Var. (C) | 36.520 | 0.149 | 0.383 | 0.185 | 0.202 | 0.180 | 0.228 |
| Std. Dev. Var. (C) | 24.080 | 0.221 | 0.327 | 0.138 | 0.164 | 0.130 | 0.168 |
| Observations | 193 | 182 | 182 | 193 | 193 | 193 | 193 |
| FE | | | | Defector rehabilitation center | | | |

*Notes*: The sample consists of individuals who completed the goal-setting (Mandala) exercise. Each column reports an ITT regression of the listed outcome on treatment assignment, including rehabilitation-center fixed effects. "Other-regarding Share" and "Self-regarding Share" are respondent-level shares of goal entries that contain at least one term from pre-specified other-oriented and self-oriented dictionaries, computed separately for subgoals, small goals, and all goals (subgoals+small goals). "Total Word Count (All Goals)" is the total number of non-stopword tokens across all subgoals and small goals (summed across entries; not per-goal). Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.16: Representative Responses by Quartile

*Panel A: By Peacebuilder Similarity*

| Quartile | Example Response | Score |
|---|---|---|
| Q1 (Bottom 25%) | "I don't know yet, but I will find out." | 0.04 |
| | "Not yet, I didn't take any action yet." | 0.05 |
| Q2 (25–50%) | "I will like to study and help my family." | 0.37 |
| | "Stable life and good job" | 0.37 |
| Q3 (50–75%) | "Good leaders with my community and my country" | 0.55 |
| | "my ultimate dream is to have a peaceful life" | 0.56 |
| Q4 (Top 25%) | "I want to support communities, foster cooperation and mutual understandi..." | 0.85 |
| | "I want to promote peace, help solve conflicts and teach others how to li..." | 0.85 |

*Panel B: By Specificity Score*

| Quartile | Example Response | Score |
|---|---|---|
| Q1 (Bottom 25%) | "I change my behavior." | −0.41 |
| | "I decided to change my life." | −0.39 |
| Q2 (25–50%) | "My dream in life is to be part of government works." | 0.07 |
| | "To stand my future and stand for peace and development." | 0.02 |
| Q3 (50–75%) | "First I will build a new life, second I will support peacebuilding in th..." | 0.12 |
| | "To seek my future and always stand by my people and my country working f..." | 0.13 |
| Q4 (Top 25%) | "I want to teach others, support peace talks, and help my community avoid..." | 0.54 |
| | "I want to contribute to community development, promote education, and he..." | 0.50 |

*Notes*: Representative survey responses at each quartile of the response-level distribution. Panel A shows examples by Peacebuilder Similarity (higher scores indicate language more aligned with peacebuilding concepts). Panel B shows examples by Specificity Score (higher scores indicate more concrete, action-oriented language; lower scores indicate more vague, abstract language).

15

# B  Contents of the Rehabilitation Program

In this section, we describe the full content and structure of the rehabilitation program. First, we present the components that are common across all sessions. Second, we detail each weekly session contents that differ across the treatment and control groups.

## B.1  Structure of the Rehabilitation Program

Each session lasts 45 minutes and consists of three components: 15 minutes of introduction, 20 minutes of main activities, and 10 minutes of Q&A and conclusion. The introduction includes 5 minutes of reflection on the previous session (except in the first session) and 10 minutes introducing the theme of the day. During the theme introduction, instructors cite a sentence from the Qur'an to highlight the relevance of the topic. The main activity consists of a 10-minute writing exercise followed by a 10-minute discussion and presentation. During the discussion, two or three participants share their thoughts in front of other participants. Instructors encourage participants to listen carefully and actively exchange ideas. The concluding segment summarizes the discussion, emphasizes key points, and addresses participants' questions. To minimize instructor-specific effects, instructors rotate across treatment and control groups every two weeks within each center. Session lengths and incentives—including in-kind food and beverages—are identical across groups.

## B.2  Contents of Each Session by Treatment

Tables B.1 to B.8 present the detailed contents of each weekly session.

Table B.1: Contents of the Week 1 Session: Reflecting on the Past and Learning from It

|  | Control Group<br>Rehabilitation Program | Treated Group<br>Rehabilitation Program +<br>Peacebuilder Messages |
| --- | --- | --- |
| Introduction | Explaining importance of past reflection by sharing example of those who overcame adversity after past reflection. | Explaining importance of past reflection, emphasizing importance of becoming the agent of peace, by sharing example of those who became a peace activist after graduating a rehabilitation program. |
| Main Activity<br>(writing exercise, common across treatment) | 1. "What are some key events or experiences in your past?"<br>2. "What lessons have you learned from these experiences? Especially during the AS period"<br>3. "How can you utilize such lesson learned for your future?" | |
| Main Activity (what teachers emphasize) | Focusing on the general importance of learning from experiences for personal growth. For example, saying "Your reflection shows how much you've grown. Learning from our past is key to building a better future for ourselves." | Emphasizing how the shared reflections demonstrate their potential as peacebuilders, and point out the importance of self-reflection to become a peacebuilder. For example, saying "What you've shared shows the strength and wisdom you've gained from your past. This is exactly what peacebuilders use to guide others and create positive change. Because you have a unique experience in the past, you can think and realize peaceful actions to others and society." |

## Table B.2: Contents of the Week 2 Session: Creating a Vision for a New Life

| | Control Group<br>Rehabilitation Program | Treated Group<br>Rehabilitation Program +<br>Peacebuilder Messages |
|---|---|---|
| Introduction | Explaining the importance of having a vision, by saying "A vision for the future helps us focus our efforts and find direction in life. It motivates us to work toward our goals." Then, share stories who achieved personal growth after leaving a rehabilitation center. | Explaining the importance of having a vision emphasizing to be an agent of peace, by saying "As an agent of peace, a strong vision for your future is essential. Your experiences can guide you to create a positive impact on others and society. As peacebuilder, you need to make your vision." Then, share personal visions of those who serves as a peacebuilider. |
| Main Activity<br>(writing exercise, common across treatment) | 1. "What kind of life do you want to build after leaving the center?"<br>2. "What are three goals you want to achieve in the next five years?"<br>3. "What steps can you take to reach these goals?" | |
| Main Activity (what teachers emphasize) | Focusing on general personal goals and growth. | Encouraging participants to think all questions as agents of peace and to include goals related to peacebuilding and community impact. |

## Table B.3: Contents of the Week 3 Session: Motivation and Confidence

| | Control Group<br>Rehabilitation Program | Treated Group<br>Rehabilitation Program +<br>Peacebuilder Messages |
|---|---|---|
| Introduction | Explaining the importance of having a motivation and confidence, by saying "Motivation helps you start, and confidence helps you keep going. Both are essential for building a better future for yourself. Let's have motivation and confidence for your new life." | Explaining the importance of having a motivation and confidence emphasizing to be an agent of peace, by saying "As peacebuilders, motivation and confidence are key to start your new life and keep it. Also it will inspire others and overcome the challenges that come with creating change. As an agent of peace, let's have motivation and confidence." |
| Main Activity<br>(writing exercise, common across treatment) | 1. "What motivates you for the new life?"<br>2. "How can you build your confidence for your new life?" | |
| Main Activity (what teachers emphasize) | Focusing on new life of participants in general. | Encouraging participants to think questions as agents of peace and to imagine their new life as a peacebuilder. |

## Table B.4: Contents of the Week 4 Session: Goal Setting and Planning

| | Control Group<br>Rehabilitation Program | Treated Group<br>Rehabilitation Program +<br>Peacebuilder Messages |
|---|---|---|
| Introduction | Explaining the importance of realistic goal setting and planning, by saying "Setting clear goals gives us direction and motivation. Having a solid plan helps turn our dreams into reality. And this should be very realistic. Or, it will be failed for sure." | Explaining the importance of realistic goal setting and planning emphasizing to be an agent of peace, by saying "As agents of peace, setting clear goals is crucial because it helps you stay committed to your mission and make a real impact in your communities. And that should be very realistic. As peacebuilders, planning to achieve your goal should be quite feasible one. Or, you cannot be peacebuilders." |
| Main Activity<br>(writing exercise, common across treatment) | 1. "What is one major goal you want to achieve in your life?"<br>2. "What are three smaller and realistic steps just after the graduation from this center you can take to achieve this goal?"<br>3. "For such steps, what will you do during days in this center?" | |
| Main Activity (what teachers emphasize) | Focusing on personal goals. | Encouraging participants to think their role as agents of peace when they consider goals and steps. |

Table B.5: Contents of the Week 5 Session: Importance of Contributing to Society

| | Control Group<br>Rehabilitation Program | Treated Group<br>Rehabilitation Program +<br>Peacebuilder Messages |
|---|---|---|
| Introduction | Explaining the importance of contribution to society, by saying "Helping others strengthens communities and builds trust. Societies thrive when individuals contribute beyond themselves." | Explaining the importance of contribution to society emphasizing to be an agent of peace, by saying "Peacebuilders create lasting impact through selfless actions. Those who dedicate themselves to peace are heroes, and the world needs you to step into that role." |
| Main Activity<br>(writing exercise, common across treatment) | 1. "After your graduation from this center, what is one way you would like to contribute to society?"<br>2. "During days in this center, what can you do for preparation to make such contributions to society?" | |
| Main Activity (what teachers emphasize) | Encouraging participants to think about general acts of contribution (volunteering, helping neighbors, etc.) | Encouraging participants to think about their role as peacebuilders and how they can drive positive change in their communities. |

Table B.6: Contents of the Week 6 Session: Becoming a Role Model

| | Control Group<br>Rehabilitation Program | Treated Group<br>Rehabilitation Program +<br>Peacebuilder Messages |
|---|---|---|
| Introduction | Explaining people who can contribute to the society can be seen as a role model, by saying "People who reintegrate into society successfully serve as inspiration for others who face similar struggles. Seeing others rebuild their lives shows that change is possible." | Explaining people who can contribute to the society can be seen as a role model emphasizing to be an agent of peace, by saying ""Peacebuilders who were once part of violent groups show that transformation is possible. They inspire others to choose peace over violence. You as an agent of peace, you need to be such role model." |
| Main Activity<br>(case study learning real examples,<br>common across treatment) | 1. A Former Al-Shabaab Member Advocating for Youth: How a disengaged member now leads programs to prevent radicalization.<br>2. A Child Soldier Turned Peace Educator: The story of someone who reintegrated and now promotes reconciliation in post-conflict communities.<br>3. A Community Leader Encouraging Rehabilitation: How a person who was once part of an armed group now helps others leave violence behind. | |
| Main Activity (personal reflection<br>common across treatment) | 1. "What lessons can we learn from these stories and what they are doing in society?"<br>2. "Who is a role model you admire, and why?"<br>3. "What qualities do you think make a great role model?"<br>4. "How can you take steps toward becoming a positive role model for others?" | |
| Main Activity (what teachers emphasize) | Encouraging participants to think about general successful reintegration stories. | Encouraging participants to think about their role as peacebuilders who can inspire change. |

Table B.7: Contents of the Week 7 Session: Engaging with Others

| | Control Group<br>Rehabilitation Program | Treated Group<br>Rehabilitation Program +<br>Peacebuilder Messages |
|---|---|---|
| Introduction | Explaining importance of engagement with others regardless of their religion, political stance, race, and gender, by saying "Understanding different perspectives is essential in any society. It helps us build better relationships and avoid misunderstandings. Also it will lead to new ideas for peace." | Explaining the importance of engagement with others regardless of their religion, political stance, race, and gender emphasizing to be an agent of peace, by saying "As agents of peace, you need to seek to understand those who are different, even those they once saw as adversaries. Listening is the first step toward mutual understanding, which leads new idea, approach, and value in this world." |
| Main Activity<br>(writing exercise, common across treatment) | 1. "Have you ever met someone whose background or beliefs were completely different from yours? What was that experience like?"<br>2. "How can we begin to engage positively with those we perceive as very different?"<br>3. "Why is listening more important than speaking when engaging with different perspectives?" | |
| Main Activity (what teachers emphasize) | Focusing on general interactions with different people. | Encouraging participants to reflect on how peacebuilders specifically engage with perceived adversaries as a potential peacebuilder. |

Table B.8: Contents of the Week 8 Session: Reflection and Future Action Plan

| | Control Group<br>Rehabilitation Program | Treated Group<br>Rehabilitation Program +<br>Peacebuilder Messages |
|---|---|---|
| Introduction | Reflecting the overall learning through the program, by saying "Planning your next steps helps you stay focused and work toward a stable future." | Reflecting the overall learning through the program emphasizing to be an agent of peace, by saying "Peacebuilders must be intentional about their next steps, ensuring they contribute positively to society." |
| Main Activity<br>(writing exercise, common across treatment) | 1. "What are three actions you will take immediately after leaving the center?"<br>2. "How will you ensure you continue to grow and contribute to society?"<br>3. "What challenges do you anticipate, and how will you overcome them?" | |
| Main Activity (what teachers emphasize) | Focusing on personal reintegration. | Encouraging participants to consider active peacebuilding roles. |

# C   Treatment Effects on Post-Session Weekly Outcomes

We use data from brief weekly post-session follow-up surveys to assess how participants engaged with and learned from the program. To do so, we estimate the following regression:

$$y_{itj} = \beta_0 + \beta_1 Treat_{itj} + \mu_j + \varepsilon_{itj}, \tag{C.1}$$

where $y_{itj}$ is the outcome for individual $i$ in session $t (= 1, ..., 8)$ taught by instructor $j$, and $\mu_j$ represents instructor fixed effects. Since instructors are not rotated across rehabilitation centers (while they rotate across treatment and control groups within the same rehabilitation center as we mentioned above), we do not include rehabilitation center fixed effects.

Table C.9: Treatment Effects on Post-Session Followup Outcomes

| | (1)<br>= 1:<br>Understood<br>the content of<br>today's session<br>well | (2)<br>= 1:<br>Found<br>today's session<br>meaningful | (3)<br>= 1:<br>Felt positive<br>about<br>today's session | (4)<br>= 1:<br>Would recommend<br>today's session<br>to friends | (5)<br>= 1:<br>Will apply<br>what I learned<br>to my daily<br>life or actions | (6)<br>= 1:<br>Today's session<br>motivated me<br>to change my<br>mindset or actions |
|---|---|---|---|---|---|---|
| Treat | 0.026 | 0.049*** | 0.050*** | 0.080*** | 0.042** | 0.025 |
| | (0.017) | (0.018) | (0.019) | (0.019) | (0.017) | (0.017) |
| $R^2$ | 0.051 | 0.033 | 0.057 | 0.133 | 0.038 | 0.040 |
| Mean Dep. Var. (C) | 0.802 | 0.772 | 0.747 | 0.712 | 0.805 | 0.820 |
| Std. Dev. Var. (C) | 0.399 | 0.420 | 0.435 | 0.453 | 0.396 | 0.385 |
| Observations | 1859 | 1852 | 1839 | 1838 | 1849 | 1856 |
| Romano-Wolf $p$-value | 0.184 | 0.025 | 0.025 | 0.001 | 0.034 | 0.184 |
| FE | | | Instructor | | | |

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data contain individuals' responses collected immediately after each of the eight sessions. The Romano-Wolf $p$-value is computed based on 1000 resamples. $^{*}\ p < 0.1$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$.

Table C.9 presents the results. Column (1) shows that there is no significant difference between treatment and control groups in terms of session comprehension. This suggests that the treatment effects observed in the main outcome variables are not due to differential understanding of session content, but rather reflect how participants internalized and responded to the material.

Columns (2)–(5) indicate that treated participants were significantly more likely to find the sessions meaningful, report positive feelings about them, express willingness to recommend them to others, and intend to apply the content to their daily lives. These results imply that treated participants were more positively engaged and motivated by the program than those in the control group. This reinforces the interpretation that the emergence of seemingly more conservative or pro-violence views among treated individuals was not driven by disengagement or discouragement, but rather occurred alongside heightened psychological investment in the program.

We also examine how these outcomes evolve over time by estimating the following regression specification:

$$y_{itj} = \gamma_0 + \sum_{k=0}^{8} \gamma_k Treat_{itj} \times \mathbb{1}\{k = t\} + \mu_j + \varepsilon_{itj}, \tag{C.2}$$

where $\mathbb{1}\{k = t\}$ is an indicator equal to 1 if the session week $t$ corresponds to week $k$. Table C.10 reports the results. We do not observe a clear or monotonic pattern in participants' positive motivation or related outcomes over time, contrary to what might be commonly hypothesized. This suggests that the treatment effects on engagement are not driven by gradual accumulation or attrition of motivation, but may instead be activated more immediately or vary depending on session content.

Table C.10: Changes in Treatment Effects on Post-Session Followup Outcomes

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | = 1:<br>Understood<br>the content of<br>today's session<br>well | = 1:<br>Found<br>today's session<br>meaningful | = 1:<br>Felt positive<br>about<br>today's session | = 1:<br>Would recommend<br>today's session<br>to friends | = 1:<br>Will apply<br>what I learned<br>to my daily<br>life or actions | = 1:<br>Today's session<br>motivated me<br>to change my<br>mindset or actions |
| Treat × Post Session 1 | -0.008 | 0.108*** | 0.174*** | 0.189*** | 0.110*** | 0.070** |
| | (0.036) | (0.035) | (0.037) | (0.037) | (0.033) | (0.030) |
| Treat × Post Session 2 | -0.177*** | -0.109** | 0.029 | -0.027 | -0.040 | -0.034 |
| | (0.045) | (0.047) | (0.045) | (0.043) | (0.042) | (0.036) |
| Treat × Post Session 3 | -0.040 | 0.017 | -0.057 | 0.033 | -0.094** | -0.008 |
| | (0.044) | (0.042) | (0.044) | (0.043) | (0.044) | (0.042) |
| Treat × Post Session 4 | 0.150*** | 0.121*** | 0.076* | 0.022 | 0.104*** | 0.122*** |
| | (0.034) | (0.037) | (0.039) | (0.044) | (0.033) | (0.036) |
| Treat × Post Session 5 | -0.009 | -0.055 | -0.060 | -0.011 | -0.038 | -0.099** |
| | (0.036) | (0.044) | (0.046) | (0.041) | (0.040) | (0.040) |
| Treat × Post Session 6 | -0.138*** | -0.123** | -0.125** | -0.052 | -0.048 | -0.103** |
| | (0.047) | (0.049) | (0.051) | (0.046) | (0.044) | (0.042) |
| Treat × Post Session 7 | 0.201*** | 0.202*** | 0.176*** | 0.220*** | 0.156*** | 0.057 |
| | (0.030) | (0.028) | (0.030) | (0.033) | (0.029) | (0.040) |
| Treat × Post Session 8 | 0.227*** | 0.229*** | 0.179*** | 0.252*** | 0.202*** | 0.206*** |
| | (0.025) | (0.024) | (0.030) | (0.029) | (0.021) | (0.025) |
| $R^2$ | 0.098 | 0.069 | 0.089 | 0.162 | 0.072 | 0.067 |
| Mean Dep. Var. (C) | 0.802 | 0.772 | 0.747 | 0.712 | 0.805 | 0.820 |
| Std. Dev. Var. (C) | 0.399 | 0.420 | 0.435 | 0.453 | 0.396 | 0.385 |
| Observations | 1859 | 1852 | 1839 | 1838 | 1849 | 1856 |
| FE | | | | Instructor | | |

*Notes*: The sample consists of individuals who were surveyed from the four defector rehabilitation centers. The data contain individuals' responses collected immediately after each of the eight sessions. $^*$ $p < 0.1$, $^{**}$ $p < 0.05$, $^{***}$ $p < 0.01$.

# D   Reference Sentences for Text Analysis

This appendix presents the reference sentences used to compute the text-based outcome measures described in Section 7. Each participant response is compared to these references using sentence embeddings (all-MiniLM-L6-v2 model) and cosine similarity.

## D.1   Embedding Model Details

All sentence embeddings are generated using all-MiniLM-L6-v2 from the Sentence-Transformers library (Reimers and Gurevych (2019)). For each participant response and each reference sentence, the model outputs a fixed-length 384-dimensional dense vector, and semantic similarity is computed with cosine similarity. The value 384 is not estimated in our data; it is the output dimension set by the pre-trained model architecture. We use this model because it provides a practical balance between computational efficiency and sentence-level semantic matching performance for English text.

## D.2   Peacebuilder Reference Sentences

The following 8 sentences represent peacebuilding intentions. The Peacebuilder Similarity score measures how closely a response resembles these references.

1. "I want to build peace and help my community heal from conflict."; 2. "I will work for reconciliation and unity among different groups."; 3. "I believe in dialogue and cooperation to resolve disputes peacefully."; 4. "I want to be a role model for others and promote peaceful coexistence."; 5. "I will con-

tribute to sustainable peace and development in my society."; 6. "Forgiveness and understanding are the paths to lasting peace."; 7. "I want to help prevent violence and protect my community."; 8. "Education and economic opportunity are keys to building peace."

## D.3   Specificity Reference Sentences

The Specificity Score is computed as the difference between similarity to specific references and similarity to vague references.

### D.3.1   Specific Reference Sentences (10 sentences)

These sentences contain concrete, action-oriented language with specific details about actions, plans, or contexts:

1. "I will teach conflict resolution skills to youth in my village by organizing weekly workshops."; 2. "I plan to start a small business selling vegetables to support my family and employ two people from my community."; 3. "I want to become a mediator who helps resolve disputes between neighbors using dialogue and negotiation."; 4. "I will volunteer at the local school to teach children about the importance of peaceful coexistence."; 5. "I have started a savings group with five other former combatants to help each other start businesses."; 6. "I meet with community elders every week to discuss how we can prevent youth from joining armed groups."; 7. "I am learning carpentry so I can build furniture and contribute to rebuilding damaged homes in my area."; 8. "I counsel young men who are thinking about joining extremist groups, sharing my own story of regret and transformation."; 9. "I work with local government officials to identify vulnerable youth and connect them with education programs."; 10. "I organize monthly community dialogues where people from different clans can share their concerns and find solutions together."

### D.3.2   Vague Reference Sentences (20 sentences)

These sentences contain abstract, generic language without specific content:

1. "I changed my thought."; 2. "Things are different now."; 3. "I have hope."; 4. "My behavior changed."; 5. "I feel better."; 6. "I am a new person."; 7. "Change happened."; 8. "Good things."; 9. "I learned a lot."; 10. "Everything is okay now."; 11. "Yes I change."; 12. "My thoughts changed."; 13. "I get hope of life."; 14. "Goal setting."; 15. "I am like newborn."; 16. "I changed physically."; 17. "Peace is good."; 18. "I support peace."; 19. "Good life."; 20. "Future is bright."