Research paper

A Naturalistic Evaluation of Group Integrative Adapt Therapy (IAT-G) with Rohingya Refugees During the Emergency Phase of a Mass Humanitarian Crisis in Cox's Bazar, Bangladesh

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ABSTRACT

Background: Studies of scalable psychological interventions in humanitarian setting are usually carried out when the acute emergency has stabilized. We report the first evaluation of an evidence-based group psychological intervention, Group Integrative Adapt Therapy (IAT-G), during the emergency phase of a mass humanitarian crisis amongst Rohingya refugees in Cox's Bazar, Bangladesh.

Methods: We did a pragmatic naturalistic evaluation (2018-2020) of a seven-session group intervention with adult Rohingya refugees with elevated symptoms of depression ($\geq$10 on the Patient Health Questionnaire) and/or posttraumatic stress disorder, PTSD, ($\geq$3 on the Posttraumatic Stress Disorder-8), and functional impairment ($\geq$17 on WHO Disability Assessment Schedule or WHODAS-brief). Screening was done across the most densely populated campsites. Blind assessments were completed at baseline, posttreatment, and at 3-month follow-up using culturally adapted measures of depression, anxiety, posttraumatic stress symptoms, complicated bereavement, adaptive stress associated with disrupted psychosocial support systems, functional impairment, and resilience.

Findings: 383 persons were screened and of the 144 persons who met inclusion criteria all participated in the group intervention. Compared to baseline scores, IAT-G participants recorded significantly lower mean scores on key outcome indices (mental health symptoms, adaptive stress, and functional impairment) at posttreatment and 3-month follow-up (all pairwise tests significant Ps<.05). From baseline to 3-month follow-up, score changes were greatest for functional impairment (d = 2.24), anxiety (d = 2.15) and depression (d = 1.9), followed by PTSD symptoms (d = 1.17).

Interpretation: A group-based intervention designed specifically to reflect the refugee experience and adapted to the language and culture, showed positive outcomes in the context of a pragmatic, naturalistic trial implemented in a mass humanitarian emergency.

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1. Introduction

An important development in global mental health in recent times has been the formulation and implementation of brief, manualized, evidence-based psychological therapies that can be delivered by

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Research in context

Evidence before this study

A meta-analysis of 36 studies found large to moderate effect sizes (overall quality of evidence low) for the effectiveness of psychological therapies used to treat symptoms of depression, post traumatic stress disorder and anxiety amongst refugees. Nevertheless, on average, the effect sizes were smaller at follow-up, that is, beyond the immediate posttreatment phase, raising questions regarding the sustainability of treatment-related improvements in mental health over time.

Added value of this study

For logistic and feasibility reasons, almost all psychological intervention studies in these settings are conducted when the acute emergency has stabilized. Our study is one of the few conducted in the acute phase of a humanitarian emergency, and to the best of our knowledge, is the first undertaken among Rohingya refugees in Bangladesh. Group Integrative Adapt Therapy (G-IAT) draws on the principles of an existing psychosocial model specific to the refugee experience.

Implications of all the available evidence

The study supports preliminary evidence indicating that a psychological intervention (IAT) tailored to the refugee experience and adapted to the recipient community's language and culture, may be effective in reducing mental health symptoms and improve functional impairment amongst refugees, the positive effects being maintained for at least three months post-therapy. The study is one of a limited number in which a group-based therapy was applied and proved effective in the humanitarian phase following mass displacement.

non-specialists after competency-based training. [1-3]. Such interventions are increasingly being used in resource-constrained humanitarian settings to assist in alleviating emotional distress and improve functioning at the community level [4]. The use of operationalized training and treatment manuals, and the employment of local lay or primary health care workers to administer such therapies, adds to the logistic and financial feasibility of these interventions [5].

Nevertheless, challenges remain in ensuring that they become embedded securely within routine service delivery systems in unstable conditions following mass emergencies. In addition, more research is needed to explain the inconsistent outcomes recorded in implementing these treatments in different settings [6]. In particular, widely differing effect sizes have been found for a commonly implemented intervention, Problem Management Plus (PM+) in different contexts [7-10]. One possibility is that there has been insufficient cultural and contextual adaptation of the treatment method across settings, a perennial source of concern in this field. Whereas the principles of core psychotherapeutic techniques may have universal relevance, and many of the scalable psychological therapies contain largely similar treatment elements [11], the extent to which each modality is adapted in practice to the culture, language and specific experiences of the recipient group may be crucial to the acceptance, comprehension and impact of the therapy [12,13]. This issue may be particularly relevant to refugee populations whose psychological symptoms are embedded in each group's unique histories of trauma exposure, forced displacement, and the range of hardships encountered following migration, including experiences of marginalization, discrimination and deprivation [14].

Integrative Adapt Therapy (IAT) is a brief psychological intervention that is explicitly developed to help refugees to locate their reactions within the specific histories of their group in relation to experiences of forced displacement and human rights violations. At the same time, the method draws on evidence-based psychological techniques derived from cognitive behavioral therapy to address the adaptive challenges refugees confront [15]. The rationale, development, adaptation, and piloting of IAT have been described extensively elsewhere [16]. In brief, IAT focuses on five domains based on the ADAPT model [17], which is a conceptual framework for mental health programming aiming to assist refugees to understand and adapt to the undermining of the core psychosocial systems disrupted by forced displacement, that is, systems of: [1] safety and security; [2] attachments and relationships; [3] access to justice; [4] roles and identity; and [5] existential meaning. To foster the adaptive process, IAT employs seven cross-cutting strategies – psychoeducation, problem solving, storytelling, relaxation, emotional regulation, cognitive reappraisal ("thinking differently", "managing expectations"), and meaning-making. The strategies are tailored to the culture of the target population and addresses the problems or challenges confronted within each of the five domains.

IAT was shown to be effective in reducing adaptive stress and symptoms of common mental disorders in a randomized trial undertaken with Rohingya and other Burmese refugee groups living in Malaysia [18,19]. Drawing on extensive ethnographic and cross-cultural work conducted with these groups, a group adaptation of IAT was subsequently piloted with the Rohingya communities living in refugee camps in Cox's Bazar, Bangladesh [20].

The Rohingya are an ethnic and cultural minority in Myanmar. Over the last decades, discrimination and human rights abuses have led to consecutive waves of forced displacement of Rohingya to neighboring countries, particularly to Bangladesh [21,22]. In the final three months of 2017, over 700,000 Rohingya crossed the border into Bangladesh to seek safety. Women and children (nearly half under the age of 12) were prominent amongst the population seeking protection. New arrivals were located in and around the settlements of Kutupalong and Nayapara in Bangladesh's Cox's Bazar district, the former site being the location of our intervention implemented six months into the acute humanitarian crisis. Living conditions in the camps were poor, with very low initial levels of vaccination among children, high levels of malnutrition and anemia, infectious disease outbreaks (diphtheria), poor literacy, rising poverty, and seasonal storms, landslides and flooding [23-26].

Early assessments indicated high levels of mental health and psychosocial needs among the recently arrived refugees: a survey in 2018, within a year of arrival, indicated that the majority (84%) of Rohingya adults had elevated symptoms of anxiety and depression, with more than half (61%) reporting mental health symptoms indicative of posttraumatic stress disorder (PTSD) [27]. The need for a mental health and psychosocial support Program was recognized by humanitarian agencies as a high priority [28], the focus being on raising awareness, restoring social connectedness and promoting self-help strategies [29-31]. Within the broader initiative of health planning, the objective was to integrate mental health interventions into primary health care in the Rohingya camps [32].

Nevertheless, in spite of these intentions, a gap remained in providing locally relevant psychological interventions, especially the absence of psychotherapies that were specifically tailored to the experiences, culture and healing concepts of the community [33,34].

As in other comparable settings, implementation of a fully powered placebo-controlled randomized controlled trial in this unstable and under-resourced setting was deemed to be unrealistic. In recognition of this constraint, we designed a naturalistic, single-arm, pre-post intervention for implementation of group IAT (IAT-G) in which participants were assessed at baseline, immediately posttreatment, and at three-month follow-up. Specifically, we aimed to assess

whether at posttreatment and 3-month follow-up, participants receiving seven sessions of IAT-G reported improvements in symptoms of common mental disorders including depression, anxiety, posttraumatic stress symptoms (PSS), and complicated bereavement, as well as in indices of adaptive stress levels and functional impairment.

2. Methods

2.1. Study Design and Participants

In June 2018, the United Nations High Commissioner for Refugees (UNHCR) commissioned the lead author (AKT) to implement and evaluate IAT-G with Rohingya communities in Cox's Bazar. A single-armed, assessor-blind, nonrandomized study was undertaken between June 2018 and February 2020. Details of the background, recruitment, training, and supervision of counselors have been described elsewhere [20].

In summary, 23 IAT trainees were recruited from four local non-governmental organizations funded by UNHCR who were already providing services in Cox's Bazar, Criteria for selection of IAT trainees included: a minimum of high school level education; proficiency in the Bangla language (preferably the local Chittagonian dialect which is closely related to the Rohingya language) and English; previous experience working with Rohingya refugees on mental health issues, awareness of ethical principles; ability to understand the basic concepts necessary for implementing the intervention; and an overall interview judgement regarding the applicant's motivation and commitment, personal attributes, and interpersonal skills. All counselors were full time employees with their respective organization charged with providing mental health support across the camps. Under a partnership agreement with UNHCR, they were able to deliver the group sessions as part of, and in addition to, their existing roles on behalf of their organizations. The history of engagement and outreach enabled IAT to be introduced rapidly across different sections of the camps through locally established delivery mechanisms

The onsite training lasted ten days and included both didactic sessions (classroom training) and field visits and was conducted in Bangla and English. Trainees were allocated to four peer supervision groups according to their respective organization, supplemented by onsite supervision by an experienced Bangladeshi supervisor (MM) in Cox's Bazar, and two expatriate Bangladeshi clinical psychologists (MAAM, SK) who had been extensively involved in the training and supervision of Rohingya IAT providers in Malaysia. All trainees were required to attend weekly supervision meetings at their respective organization.

The project was ethically approved by the Institutional Review Board at the Bangladesh Medical Research Council.

2.2. Inclusion and exclusion

Four Bangla/Rohingya speaking independent assessors screened Rohingya refugees living in Kutupalong, the largest camp housing recent arrivals and long-term residents. The screening locations included health posts, primary care clinics, women- and child-friendly spaces, community centers as well as in limited instances, private homes dispersed across seven campsites in Kutupalong. The participant selection process was explicitly designed to resemble the way referrals for psychological interventions are likely to occur, whether through self-referral, community identification or via agencies. The inclusion criteria for the adult population (18 years and older) were: (I) a total score of 10 or above on the Patient Health Questionnaire (PHQ-9) (indicative of depression) [35]; and/or (II) at least 1 item with a score of 3 or above on PTSD-8 (Posttraumatic Stress Disorder-8) for each of the three PTSD clusters [36]: intrusion (items 1, 2, 3, 4), avoidance (items 5, 6), and hypervigilance (items 7,

8); and (III) a score of 17 or above on the WHODAS-brief [37]. Individuals screening positive for depression and/or PTSD as well as impaired functioning were invited to participate in the program. Excluded for the trial were persons who: (I) were unable to provide consent (II) showed overt signs of severe cognitive impairment and/or intellectual disability or (III) of active psychotic symptoms; (IV) expressed a moderate or high risk of suicide (see below for risk assessment). Prior to screening, the assessor team received training in the protocol used by the primary care clinics based on the WHO mhGAP Humanitarian Intervention Guide. The mhGAP protocol was used by the assessors to determine the eligibility of participants based on the aforementioned criteria [38].

2.3. Safety

To ensure the safety of participants, all IAT counselors were trained in the steps in assessing and addressing suicide risk. Step 1 was based on item nine of the PHQ-9 to screen participants with suicidal ideation. At Step 2, those with a score of one or above on item nine were assessed further for self-harm using a yes/no 7-item checklist including [1] recent self-harm threats; [2] recent thoughts of suicide; [3] plans to end his/her life; [4] having access to means for suicide (e.g., sharp object, medication, drugs); [5] current substance use; [6] previous attempted suicide, and [7] family history of suicide.

Based on their responses to the checklist items, participants were stratified according to risk – low risk, moderate risk, and high risk. For safety reasons, we excluded participants in the moderate- and high-risk groups from the study. Accordingly, persons in the low-risk group were monitored for changes in mood and suicidal thoughts on a weekly basis. Participants in the moderate group were excluded and a safety plan would be implemented with the participant being linked to relevant support systems and organizations. In addition to the procedure for moderate risk, for high-risk individuals, who were also excluded from the study, an emergency protocol would be initiated with 24/7 monitoring until risk lowered and the possible transfer to health clinics or hospitals if necessary.

2.4. Blinding and Outcome Assessments

In parallel to the IAT training workshop, a separate training was conducted with an independent team of outcome assessors on the use of the tablet-based battery consisting of questionnaires using Rohingya audio recordings. All assessors engaged in repeated simulated practice sessions over the course of the training and in naturalistic sessions with refugees. During adaptation and testing, we drew on the repository of mental health terminology and culturally specific idioms, analogies, and metaphors we had previously compiled [19,22]. All outcome assessors were blind to the treatment allocation of participants. To test whether blinding was maintained throughout the study, we used a modified version of 'Blinding Index' (BI) [39] in which each assessor was asked to guess the treatment assignment (IAT, supportive counseling, or do not know) of the participants they assessed prior to and after the intervention completed.

2.5. Cultural Adaptation and Testing of Instruments

The process of cultural adaptation and testing of the assessment battery was described in detail elsewhere [20]. In summary, for ease of administration, we selected brief standardized measures of depression (PHQ-9) [35], anxiety (Generalized Anxiety Disorder-7) [40], PTSD (Harvard Trauma Questionnaire- version for DSM 5) [41], adaptive stress (Adaptive Stress Index or ASI) [42], functional impairment (WHODAS 2.0) [43], and resilience (Brief Resilience Scale) [44]. The battery was administered electronically on tablets by assessors, followed by posttreatment assessments (either immediately or within a day or two after completing the program) and at 3-month follow-up.

The assessment battery – informed by our previous formative work – was subjected to a series of adaptations using focus groups with the IAT implementation team during a 10-day onsite workshop with research assistants in Cox's Bazar.

The process involved the following steps. The questionnaires were first translated to Bangla; they were then modified to be consistent with the Rohingya language by bilingual IAT master trainers.

2.6. Depression

The PHQ-9, a widely used standard instrument for depression, was used to assess depressive symptoms in the previous two-week period. The instrument comprised nine items; each item was scored on a four-point frequency-based scale ("0" = not at all, "1" = several days, "2" = more than half days, "3" = nearly every day). The PHQ-9 has been tested in numerous culturally diverse populations including refugees and asylum seekers [35], in clinical trials and epidemiological studies [45]. The equivalent terms of depression in Rohingya were elicited in response to material needs: *Peré-chani* (general sadness), *Dukh/dukhita* (feeling sad because of unmet needs), *Sein-taat* (feeling sad because of lack of shelter), *Dil-chojfi-ho-mi-giyoi* (loss of interest), *Khut-khushi (suicide), Haiti-loiti-dhukh* ("eating suffered" or loss of appetite). The item pool (range: 3 to 27) based on this sample showed high levels of internal consistency and reliability measured by Cronbach's alpha (α) at baseline (α =0.82) and at posttreatment (α =0.91).

2.7. Anxiety

Anxiety symptoms were assessed using the GAD-7 [40], a widely used measure of anxiety with seven items. Each item was scored on a 4-point frequency-based scale ("0" = not at all, "1" = several days, "2" = more than half days, "3" = nearly every day). The equivalent terms of anxiety in the Rohingya language included: *Báfa-seinta* (worry and anxiety due to statelessness), *Chóit-goron (restlessness), Khoilla-dudo-fani* (palpitations), *Choit-goron (*feeling jumpy), *Ba-fa-seintaat* (feeling anxious). The item pool (range: 4 to 23) in this sample showed sound internal consistency and reliability at baseline (α =0.80) and at posttreatment (α =0.88). The PHQ-9 and GAD-7 items were cross-validated by a bilingual Bangla/Rohingya-speaking specialist with the items from the relevant modules of the Refugee Mental Health Assessment Package (RMHAP) using the audio translations of these items. The RMHAP was previously validated in the Rohingya in Malaysia [46].

2.8. Posttraumatic Stress Symptoms (PSS)

The HTQ-5 was used to index PSS with 25 items, and each item was scored on a four-point severity-based scale ("1" = not at all, "2" = a little, "3" = quite a lot, "4" = extremely) based on the PTSD criteria in the DSM-5 (Diagnostic and Statistical Manual for Mental Disorder 5th edition). The HTQ is a widely used measure for PSTD symptoms among refugees, and originally used for Indochinese refugees [47], and it has been validated and used in many post-conflict and humanitarian settings. We used the updated version modified based on the DSM-5 criteria [41]. Salient terms for trauma-related symptoms in the Rohingya language were: *Dilor sénaák* (trauma), *Horáf kuáp* (nightmares), *Ocorr-hushi-yari* (hypervigilance), *Dorr* (fear), *Dorr-laga* (fearful of being killed). The item pool (range: 27 to 98) based on this sample showed very high internal consistency and reliability at baseline (α =0.96) and at posttreatment (α =0.95).

2.9. Complicated Bereavement

We used an interview-based questionnaire to assess symptoms of Persistent Complicated Bereavement Disorder (PCBD) defined in the DSM-5 [48]. The module, previously tested in the Rohingya refugees

in Malaysia [49], includes 19 items based on the DSM-5 criteria for PCBD; each item was scored on a four-point severity-based scale ("0" = not at all, "1" = a little, "2" = quite a lot, "4" = extremely). Furthermore, the module inquired into the onset (since the loss(es) occurred), course and duration of symptoms (12 months or longer), and the degree of dysfunction, specified in the DSM-5 criteria for PCBD. The presence of a loss event(s) was recorded prior to the interview and all remaining questions were asked and answered irrespective of the entry criterion. The equivalent terms of PCBD in Rohingya included: *Dilor-furani* (grief), *Judaiyee* (feeling isolated because of separation from family), *Hountte* (loss), *Azi-giyoi* (material loss), *Haráiyé* (loss of family members), *Besút* (numbness), *Afsus* (feelings of sorrow), *Arr-horite-loi-jer,* (hopelessness because of separation). The item pool (range: 0 to 54) based on this sample showed very high internal consistency and reliability at baseline (α =0.98) and at post-treatment (α =0.97).

2.10. Adaptive stress related to deteriorated psychosocial support systems

The process of adapting and testing the Adaptive Stress Index (ASI) was described elsewhere [42]. The ASI-24 comprises 24 items with five subscales assessing the levels of stress related to the deterioration of the five psychosocial support systems: ASI-1 (5 items): safety and security; ASI-2 (4 items): attachments and relationships; ASI-3 (6 items): access to justice; ASI-4 (5 items): role and identity disruptions; ASI-5 (4 items): meaning of life. Each item was scored on a four-point severity-based scale ("0" = not at all, "1" = a little, "2" = quite a lot, "3" = extremely) with higher scores denoting higher levels of adaptive stress. The ASI was adapted and used in studies with several refugee groups including the Rohingya [46]. Salient terms elicited from our qualitative work with the Rohingya included: for ASI 1: *Dhor* (fear), *Sinta* (worry), *Hefajot ni* (feeling unsafe or insecure), *Andar andar Lagon* (darkness), *Himmot Bangijon* (feeling nervous); for ASI 2: *Eyaali udon/Beshi fet furon* (grief), *Afsus* (sorrow), *Mon horaf* (sorrow), *Ehkela thaakon* (lonely), *Ghoror lai Dil jolon* (homesickness); for ASI-3: *Ghussa* (anger), *Teata* (bitter/resentment), *Beinsaf* (feelings of unfairness); for ASI-4: *Shorom* (shame), *Mone nohor* (loss of interest); for ASI-5: *Pereshani /Ohomani* (frustration), *dham nai* (feeling worthless), *Nije Nije morito mone hor* (feeling suicidal). A composite ASI score was generated by aggregating all five subscale total scores. The composite ASI score ranges 11 to 70 and item pools for study sample showed high levels of internal consistency at baseline (α =0.89) and posttreatment (α =0.85).

2.11. Functional impairment

The World Health Organization Disability Assessment Schedule (WHODAS 2.0, 12-item version) has been extensively used across cultures and comprises six core functions/domains relating to cognition/communication, going out (mobility), self-care, interpersonal interactions, life activities (work, home), and participation in society [50,51]. We had earlier used and assessed the scale among Rohingya refugees in Malaysia [49]. Each item was rated on a five-point scale ranging from "1" = no impairment to "5" = extreme impairment. A total score was generated by adding 12 items, with a higher score indicating greater functional impairment. The item pool (range: 9 to 38) based on this sample showed high levels of internal consistency and reliability at baseline (α =0.84) and at posttreatment (α =0.93).

2.12. Resilience

As a proxy measure of resilience, we used the Brief Resilience Scale [44] which consisted of six items; the BRS is a widely used scale for resilience with reasonable reliability and validty [52]. Participants were asked to rate each item on a five-point Likert scale based on

how well each statement described their behaviour and actions: "1" = not true at all, "2" = rarely true, "3" = sometimes true, "4" = often true, "5" = true nearly all the time. The item pool (range: 11 to 28) based on this sample showed sound internal consistency and reliability at baseline (α =0.66) and at posttreatment (α =0.72).

2.13. Group Integrative Adapt Therapy (IAT-G)

The training, supervision, competence evaluation, and fidelity monitoring of IAT-G has been described elsewhere [20]. The IAT counselors conducted seven weekly group sessions implemented separately with men and women. Each group session included five to eight participants and lasted 90 minutes. Verbal consent was obtained first to participate in the screening process and then for participation in the IAT-G. The group sessions were delivered at a range of locations including women- and child-friendly spaces, as well as their homes in the camps. Of the 168 group sessions completed, we did fidelity checks on 20% (n = 35 sessions) of the group sessions using a yes/no checklist based on the steps distilled from each treatment strategy; in addition, direct observations of live group sessions were conducted by the supervisors during their field visits (AKT, MMA, MM). Onsite and remote supervision was provided throughout the study period.

Each group session, lasting around 90 minutes, focused on a psychosocial support system or pillar of the ADAPT model. Participants were encouraged to reflect on past and ongoing experiences related to each of the five support systems following mass persecution and displacement, and how the disruptions impacted on their societies, their families, and their personal lives. During this reflective and introspective process, participants shared their experiences with other group members. In parallel, participants were introduced to the CBT strategies in a stepwise and skills-building manner, indicating how they could be used to deal with feelings of stress related to the disruption of the ADAPT pillars. In this way, the facilitator proceeded through a process of psychoeducation focusing on the ADAPT model and the five support pillars, continuing with the steps in recognizing and coping with difficult emotions arising from disruptions related to each pillar; in managing stress and emotions related to each pillar; in managing expectations in the context by re-appraising thoughts and interpretations of the situation; and in making sense of the past and discovering and committing to meaningful actions and changes in the future. Although the group-based strategy allowed the sharing of understandings and strategies, each person was encouraged to personalize their interpretations and use of skills to attend to individual needs.

2.14. Statistical Analysis

The analysis followed our pre-established plan (described in the study protocol approved by BMRC). We did a power calculation based on paired t-tests aiming to show broad differences between pretreatment ("T1"), posttreatment ("T2"), and 3-month follow-up ("T3") in depression, posttraumatic stress symptoms (PSS), anxiety, complicated bereavement, and the five ASI subscales. As such, we estimated that a minimum of 64 participants would be required at each assessment point, assuming a moderate effect size of 0.5 or greater, with 80% power, based on a two-tailed 5% significance level, accounting for an attrition rate of 50%.

In the first step, we did descriptive analyses of sociodemographic characteristics based on the baseline sample (assessed at T1) including age, gender, employment status, educational attainment, and marital status, and time of residency or displacement (in months).

In the next step, we calculated mean total scores for all outcome measures at T1 (n=144), T2 (n=120), and T3 (n=66). The overall mean total scores for outcome measures were compared between all paired time points (T1 vsT2, T1 vs T3, T2 vs T3) with 95% Confidence Interval

(CIs) reported (noting that the numbers changed for each comparison based on those completing each of the relevant assessments). Multiple group comparison tests (between 'T1 vs. T2', 'T1 vs. T3' and 'T2 vs. T3') were conducted using ANOVA (analysis of variance) for repeated measures.

To refine the analysis, we then did pairwise comparisons through paired t-tests to examine for differences in all outcomes in a series of two-way comparisons (that is, T1 vs. T2, T1 vs. T3 and T2 vs. T3) between the three time points based on matched samples. The analyses showed the differences in pair-wise outcomes within the same cohort of participants across different time points. Based on the two-way comparisons, we computed effect sizes (Cohen's d) [53] for each outcome as an indication of the magnitude of change in treatment outcomes from pre- to posttreatment (T1 to T2) and from pretreatment to 3-month posttreatment (T1 to T3). We applied the established thresholds for interpreting the effect sizes, with a Cohen's d of 0.2 denoting a small effect, 0.5 a medium effect, 0.8 and above a large effect [53]. In the final step, confirmatory pairwise analyses of all outcomes were performed on a matched treatment cohort (n = 58) across the three timepoints.

To ensure statistical integrity, we excluded the entire records of individuals lost to follow up at T2 and T3; at the same time, as shown in our power calculation, our cohort analyses were sufficiently powered to detect broad differences in all outcomes across the three timepoints. The analyses were performed by an off-site statistician independent of the project using STATA (version 14) and SPSS version 26 [54]. To quantify the success of blinding, we calculated the frequency in which assessors correctly vs. incorrectly guessed participants' treatment allocation
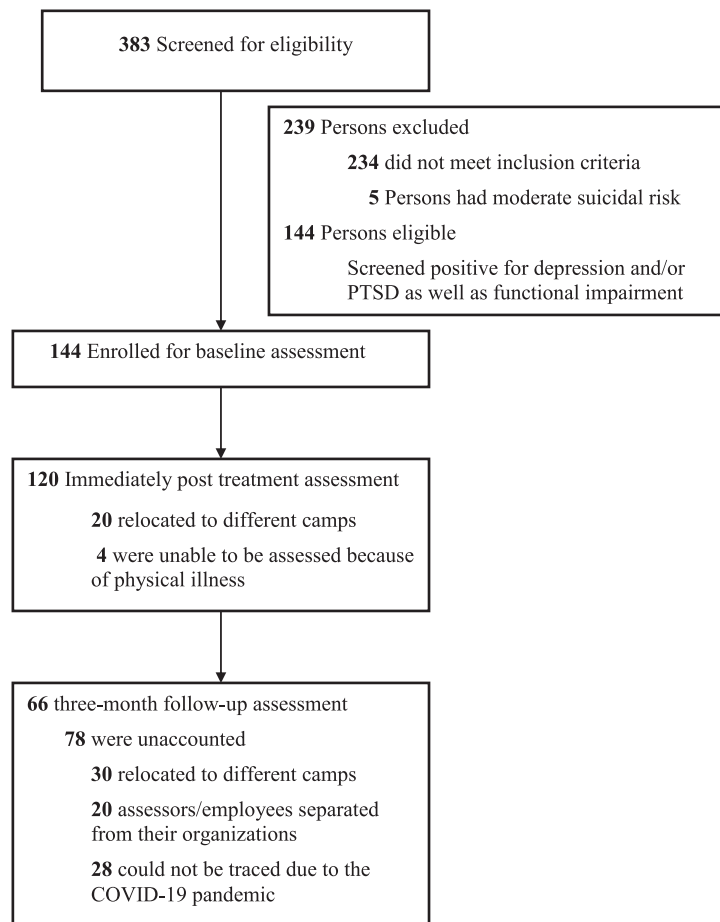
2.15. Role of Funding Source

3. Results

3.1. Sociodemographic characteristics of the treatment cohort

A total of 383 Rohingya refugees were screened for depression, PTSD, and functional impairment using predetermined cutoffs. Of these, 144 persons met the inclusion criteria, provided consent for participating in the program, and completed baseline assessments. See Figure 1 for the flow diagram for participants receiving IAT-G.

Ten persons were identified as having a low risk of suicide and were monitored weekly for changes in mood and suicidal thoughts over the course of the group intervention; by the end of the group intervention, all participants reported reduced depressive symptoms including an absence of suicidal thoughts. Five persons were identified as having moderate suicidal risk and hence excluded from the study; following the safety protocol, they were followed up by IAT counselors daily until their suicidal risk decreased. All 144 participants attended the full seven sessions of IAT-G. The majority of outcome assessors (>90%) who had no prior exposure to IAT, endorsed 'I don't know' when asked to guess participants' treatment allocation prior to and after the program.

The retention rate based on the baseline sample of 144 was 83.3% (n = 120) immediately posttreatment and 45.8% (n = 66) at 3-month follow-up. We completed the 3-month follow-up (mean: 3.2 months)

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│  383 Screened for eligibility        │
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            │
            │          ┌──────────────────────────────────────────┐
            │          │  239 Persons excluded                    │
            │          │     234 did not meet inclusion criteria   │
            │          │       5 Persons had moderate suicidal risk│
            │          │  144 Persons eligible                     │
            │          │     Screened positive for depression and/or│
            │          │     PTSD as well as functional impairment │
            │          └──────────────────────────────────────────┘
            ▼
┌─────────────────────────────────────┐
│  144 Enrolled for baseline assessment│
└─────────────────────────────────────┘
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            ▼
┌─────────────────────────────────────────────┐
│  120 Immediately post treatment assessment   │
│     20 relocated to different camps           │
│      4 were unable to be assessed because     │
│     of physical illness                       │
└─────────────────────────────────────────────┘
            │
            ▼
┌─────────────────────────────────────────────┐
│  66 three-month follow-up assessment         │
│     78 were unaccounted                       │
│       30 relocated to different camps         │
│       20 assessors/employees separated        │
│       from their organizations                │
│       28 could not be traced due to the       │
│       COVID-19 pandemic                        │
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Fig. 1. Flow Diagram for Participants Receiving IAT-G.

assessments in February 2020 prior to the declaration of the Covid-19 pandemic in March 2020. Twenty-four participants were uncontact-able immediately posttreatment as they relocated to different camps sites (n=20) and four participants were unable to be assessed because of physical illness (n = 4). At the 3-month follow-up, 78 participants were unaccounted for because they relocated to different camp sites (n = 30); high turnover of staff (n = 20); and the escalating situation of the COVID-19 pandemic which interfered with retracing efforts (n = 28).

Based on random audits of all treatment sessions, participants in the baseline sample attended all 7 sessions of the program as required. The compliance was high as participants were largely available in the camps, had access to the weekly program, and showed a high level of engagement throughout the sessions. The mean age for the baseline sample (n = 144) was 37.4 years (*SD*= 12.8). Nearly a third (n =44, 30.6%) were aged between 18 and 29 years old, 44.4% (n = 64) between 30 and 49 years and the remainder (n = 36, 25%) were 50 years and older (Table 1). Over half (n = 84, 58.3%) were male and the majority (n =139, 96.5%) were married. More than half (n =78, 54.2%) of participants never attended school, 41.6% had completed primary school education, and only a minority (n =6, 4.2%) had completed high school education. Virtually all (n =143, 99.3%) participants were unemployed; the mean duration of residency in the camps was 22.7 months (*SD*= 6.8) (Table 1).

3.2. Comparisons of pretreatment and post-treatment outcomes

Table 2 reports the mean total scores for all outcomes based on non-matched samples at pretreatment (n = 144), posttreatment (n = 120), and 3-month follow-up (n = 66), respectively. Compared to

baseline scores, immediately posttreatment, and at 3-month follow-up, IAT-G participants showed significant reductions in symptoms on all mental disorder indices including depression, anxiety, PSS, and complicated bereavement (all Ps <0.05). Participants also reported lower levels of adaptive stress across all five ASI subscales (ASI-1, ASI-2, ASI-3, ASI-4, ASI-5) and functional impairment both from

Table 1
Sociodemographic Characteristics of the Treatment Cohort (n=144).

	Number of participants	% of total participants
Age (in years)		
18-29	44	30.6
30-49	64	44.4
50 and above	36	25.0
Mean (standard deviation)		*37.4(12.8)*
Gender		
Male	84	58.3
Female	60	41.7
Marital status		
Married	139	96.5
Single	5	3.5
Educational status		
Illiterate	78	54.2
Primary/Madrasa	60	41.6
Secondary School	6	4.2
Employment status		
Unemployed	80	55.6
Housewife	63	43.8
Employed	1	0.7
Duration in BD (months)		
Up to 24 months	87	60.4
More than 24 months	57	39.6
Mean (standard deviation)		*22.7 (6.8)*

Table 2
Mean score with 95% confidence interval (95% CI) for outcome measures at Baseline (T1), Posttreatment (T2) to 3-month Follow-up (T3).

Outcome Measures	Baseline(T1, n=144)	Posttreatment(T2, n=120)	3-month Follow-up(T3, n=66)
	Mean score (95% CI)	Mean score (95% CI)	Mean score (95% CI)
Symptom measures:			
Depression	17.5 (16.7 – 18.3)	7.3 (6.4 – 8.2) ↓[a]	6.1 (5.2 – 7.0) ↓[a]
Anxiety	15.0 (14.5 – 15.6)	6.2 (5.5 – 6.8) ↓[a]	4.8 (4.0 -5.6) ↓[a]
Posttraumatic Stress Symptoms (PSS)	63.0 (60.1 – 65.9)	36.6 (34.7 – 38.5) ↓[a]	36.2 (33.5 – 39.0) ↓[a]
Complicated bereavement (based on the full sample)	22.2 (18.9 -25.6)	9.2 (7.2 – 11.1) ↓[a]	6.8 (4.5 -9.2) ↓[a]
Complicated Bereavement (based on a subsample who met full criteria for DSM-5 Persistent Complicated Bereavement Disorder) [b]	37.3 (34.6 -40.0)	17.4 (15.2 – 19.7) ↓[a]	14.7 (10.9 -18.4) ↓[a]
Adaptive Stress Index (composite score)	46.8 (44.9 -48.7)	20.2 (18.0 – 22.4) ↓[a]	18.6(15.8 – 21.4) ↓[a]
Adaptive Stress Index (ASI) Scales:			
ASI-1: Safety and security	10.0 (9.6 – 10.4)	4.4 (3.9 – 4.9) ↓[a]	3.7 (3.1 - 4.4) ↓[a]
ASI-2: Attachments and relationships	7.0 (6.4 – 7.5)	3.4 (3.0 – 3.8) ↓[a]	3.1 (2. 6 - 3.6) ↓[a]
ASI-3: Access to justice	12.4 (11.7 – 13.0)	5.3 (4.6 – 6.0) ↓[a]	5.2 (4.4 – 5.9) ↓[a]
ASI-4: Role and identity disruptions	10.0 (9.5 – 10.5)	4.1 (3.6 – 4.6) ↓[a]	3.6 (2.9 – 4.3) ↓[a]
ASI-5: Existence and meaning of life	7.5 (7.0 – 7.9)	3.1 (2.7 – 3.5) ↓[a]	3.0 (2.4 – 3.6) ↓[a]
Brief Resilience Scale (BRS)	19.7 (19.1 – 20.3)	15.6 (14.8 – 16.4) ↓[a]	17.3 (16.5 – 18.2) ↓[a]
WHODAS Total score	25.6 (24.5 – 26.7)	11.0 (9.7- 12.3) ↓[a]	9.1 (7.7 -10.4) ↓[a]

IAT= Integrated adapt therapy; CBT= Cognitive behavioral therapy.
Multiple group comparison test between 'T1 vs. T2', 'T1 vs. T3' and 'T2 vs. T3' were conducted through ANOVA for repeated measures.
↓[a] Indicates that mean score is significantly (p<0.05) lower than baseline score.
[b]We calculated the mean total scores of those who met the DSM-5 criteria for Persistent Complicated Bereavement Disorder (PCBD) at each timepoint: (T1, n=76; T2, n= 62; T3, n= 23).

baseline to posttreatment and from baseline to 3-month follow-up (all Ps <0.05).

Table 3 reports the refined two-way matched sample mean differences and effect sizes across the three timepoints (Figure 2). Each matched sample comprised only participants who completed each outcome measure between the two timepoints under comparison. As such, the sample size based on all participants who completed their assessment at each timepoint differed within each comparison group. We did a series of pairwise comparisons (T1 vs. T2, n = 106; T2 vs. T3, n = 59; T1 vs. T3, n = 59;) to examine the differences in outcomes between pretreatment, posttreatment, and 3-month follow-up.

Compared to their baseline scores, participants receiving IAT-G had significantly lower mean total scores on all outcomes (all indices of mental disorders, ASI, and functional impairment) at posttreatment and at 3-month follow-up (all pairwise tests were significant Ps<.05).

We calculated effect sizes to quantify the magnitude of change in each outcome from baseline to posttreatment and 3-month follow-up. The results showed that from baseline to 3-month follow-up, functional impairment (d = 2.24), anxiety (d = 2.15) and depression (d = 1.9) exhibited the largest decreases, followed by PTSD (d = 1.17) from baseline to 3-month follow-up.

The composite ASI showed overall large reductions from pre- to posttreatment (d = 1.56) and from pre- to 3-month posttreatment (d = 1.63). The individual effect sizes for the disaggregated ASI scales all exceeded 1 (except for ASI-5, d = 0.93): 1.65 for ASI-1; 1.15 for ASI-2 and ASI-3; 1.4 for ASI-4. IAT-G had a medium effect on reducing complicated bereavement symptoms (d = 0.57) and a small effect on increasing resilience (d = 0.24). The intercorrelations between all outcomes are presented in supplementary file 1.

Finally, we limited the analysis to those who completed all three assessments (n = 58). The results showed a similar pattern in that IAT-G participants reported lower scores on all indices from pretreatment and immediately posttreatment. Furthermore, except for resilience, there was evidence of further decreases over time, that is from baseline to 3-month follow-up, on all indices (all four mental disorder indices and all ASI subscales).

4. Discussion

We report the first naturalistic evaluation of an evidence-based psychotherapy amongst Rohingya refugees in Bangladesh. The participants receiving seven sessions of IAT-G reported significant decreases in symptoms of depression, anxiety, posttraumatic stress symptoms, and complicated bereavement, as well as in adaptive stress levels and functional impairment from baseline to posttreatment. Furthermore, except for resilience, there was evidence of further decreases on all outcome indices when including the 3-month follow-up (all four mental disorder indices and all ASI subscales). The largest effects were in improvements in anxiety, depression, and functional impairment from baseline to 3-month follow-up.

Prior to discussing our findings, several caveats warrant consideration. Due to the numerous challenges described elsewhere in piloting and evaluating a group-based program in the context of an ongoing humanitarian emergency [33], we adopted a pragmatic design and methodology. For evident reasons, the chaotic and complex situation of an unfolding mass humanitarian crisis was not conducive to designing and implementing a randomized controlled trial, as is generally the case in these contexts. Importantly, however, this naturalistic evaluation followed the positive outcomes obtained from a previous clinical trial of individual IAT conducted with the Rohingya and other refugee populations from Myanmar in a more stable environment in Malaysia [18]. Following extensive consultations with stakeholders, including UNHCR who prioritized service delivery supported by quantifiable outcomes in emergency settings, we chose a naturalistic pre-post design with the endpoints being measured immediately posttreatment and at 3-month follow-up. The consistency of findings across the RCT in Malaysia and this naturalistic study conducted in a humanitarian setting – in which the same measures were used - offers support for both the effectiveness and feasibility of implementing IAT in this refugee population group across settings of resettlement.

A strength of our study is the use of independent assessors not involved in the delivery of IAT-G in administering culturally and contextually valid assessments in the Rohingya language. Considerations of relevance, brevity and ease of administration determined our selection of mental health indices supplemented by indices of adaptative stress and resilience we previously validated with Rohingya refugees in Malaysia [49]. The assessment battery was piloted in Bangladesh prior to the study based on our previous ethnographic work with this group and locally further adapted. The systematic process of cultural adaptation and testing of instruments is particularly important [34] in a group with low literacy that was not familiar with many of the concepts of psychological therapies applied internationally.

Table 3

Two-way comparisons of mean total scores (standard deviations) of mental health and psychosocial measures based on matched samples between three assessment timepoints with associated effect sizes ([b] Cohen's *d*).

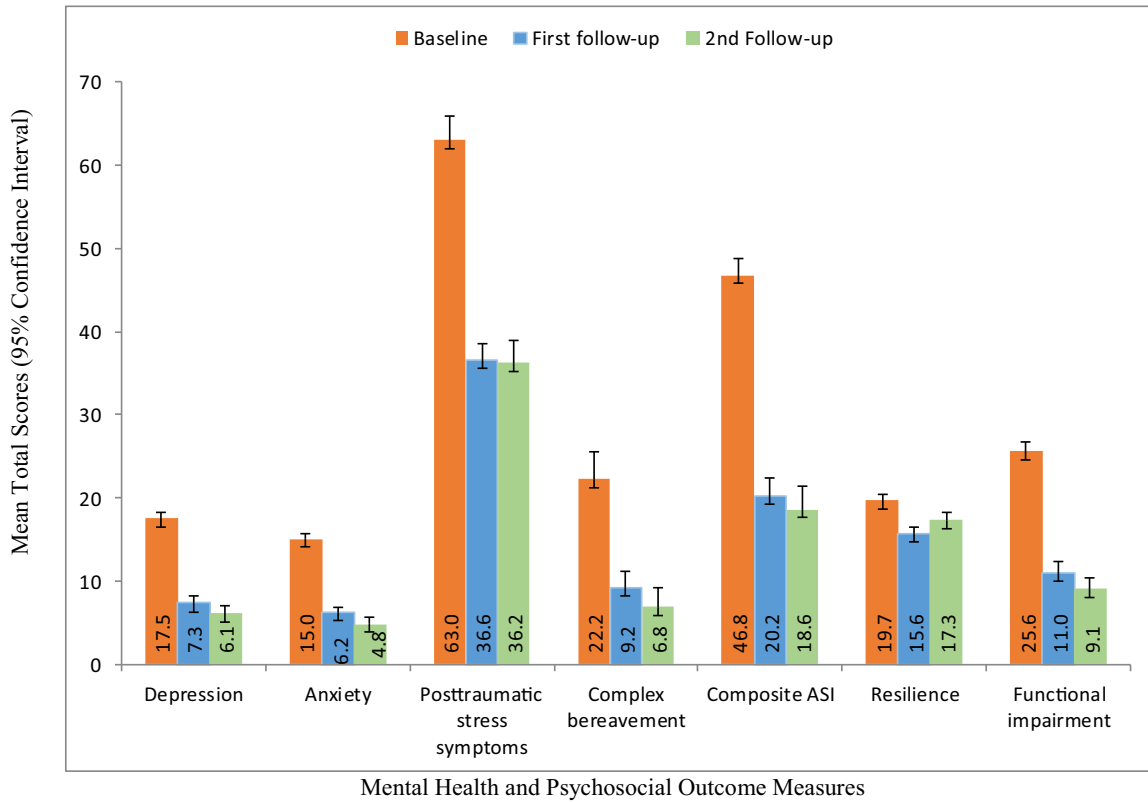| Measures/ Pairwise matched sample	Baseline (T1)	Posttreatment (T2)	3-month follow-up (T3)	Mean T1 vs T2: p-values from paired t-test	Mean T1 vs T3: p-values from paired t-test	Mean T2 vs T3: p-values from paired t-test	Effect size (Cohens' *d*)
Depression							
T1 and T2 Matched (n=104)	17.0 (4.8)	8.0 (4.9)	-	<0.001	-	-	1.59
T1 and T3 Matched (n=59)	15.8 (4.7)	-	6.1 (3.9)	-	<0.001	-	1.90
T2 and T3 Matched (n=65)		6.8 (3.6)	6.0 (3.8)	-	-	0.15	0.18
Anxiety							
T1 and T2 Matched (n=106)	14.5 (3.8)	6.5 (3.8)	-	<0.001	-	-	1.64
T1 and T3 Matched (n=59)	13.3 (3.7)	-	4.8 (3.5)	-	<0.001	-	2.15
T2 and T3 Matched (n=65)		5.8 (2.4)	4.7 (3.3)	-	-	0.003	0.39
Posttraumatic Stress Symptoms							
T1 and T2 Matched (n=105)	60.4 (18.9)	37.2 (10.8)		<0.001	-	-	1.28
T1 and T3 Matched (n=59)	54.8 (15.4)		36.7 (11.6)	-	<0.001)	-	1.17
T2 and T3 Matched (n=65)		36.3 (8.3)	36.2 (11.3)	-	-	0.93	0.01
Complicated bereavement							
T1 and T2 Matched (n=106)	17.8 (19.5)	9.6 (11.7)		<0.001	-	-	0.52
T1 and T3 Matched (n=59)	15.9 (18.5)		7.4 (10.0)	-	0.002	-	0.57
T2 and T3 Matched (n=65)		9.2 (9.9)	6.6 (9.5)	-	-	0.03	0.26
ASI composite							
T1 and T2 Matched (n=105)	44.8 (12.3)	21.2 (12.4)		<0.001	-	-	1.56
T1 and T3 Matched (n=59)	42.0 (12.8)		18.5 (11.9)	-	<0.001	-	1.63
T2 and T3 Matched (n=65)		20.1 (9.5)	18.2 (11.0)	-	-	0.09	0.21
ASI-1 (Safety and security)							
T1 and T2 Matched (n=105)	9.7 (2.5)	4.5 (2.7)		<0.001	-	-	1.69
T1 and T3 Matched (n=59)	9.5 (2.6)		3.7 (2.6)	-	<0.001	-	1.65
T2 and T3 Matched (n=65)		4.2 (2.1)	3.6 (2.5)	-	-	0.06	0.24
ASI-2 (Attachments and relationships)							
T1 and T2 Matched (n=106)	6.7 (3.6)	3.6 (2.3)		<0.001	-	-	0.86
T1 and T3 Matched (n=59)	7.2 (2.9)		3.1 (2.1)	-	<0.001	-	1.15
T2 and T3 Matched (n=65)		3.4 (1.6)	3.0 (2.0)	-	-	0.16	0.18
ASI-3 (Access to justice)							
T1 and T2 Matched (n=106)	11.8 (4.1)	5.6 (4.0)		<0.001	-	-	1.18
T1 and T3 Matched (n=59)	10.8 (4.2)		5.1 (3.1)	-	<0.001	-	1.15
T2 and T3 Matched (n=65)		5.2 (3.1)	5.1 (3.0)	-	-	0.08	0.03
ASI-4 (Role and identity disruptions)							
T1 and T2 Matched (n=106)	9.6 (3.4)	4.2 (2.9)		<0.001	-	-	1.21
T1 and T3 Matched (n=59)	8.6 (3.3)		3.5 (2.9)	-	<0.001	-	1.40
T2 and T3 Matched (n=65)		4.1 (2.4)	3.5 (2.6)	-	-	0.03	0.27
ASI-5 (Meaning of life)							
T1 and T2 Matched (n=106)	6.9 (3.1)	3.2 (2.1)		<0.001	-	-	0.96
T1 and T3 Matched (n=59)	6.0 (3.2)		3.1 (2.6)	-	<0.001	-	0.93
T2 and T3 Matched (n=65)		3.2 (1.9)	2.9 (2.3)	-	-	0.37	0.11
Resilience							
T1 and T2 Matched (n=106)	19.4 (3.7)	15.2 (4.6)		<0.001)	-	-	0.82
T1 and T3 Matched (n=59)	18.7 (3.3)		17.4 (3.6)	-	0.06	-	0.24
T2 and T3 Matched (n=65)		14.9 (4.9)	17.5 (3.3)	-	-	0.003	-0.38
Functional impairment							
T1 and T2 Matched (n=103)	24.9 (5.9)	12.0 (6.8)		<0.001)	-	-	2.02
T1 and T3 Matched (n=59)	23.4 (5.9)		9.1 (6.0)	-	<0.001)	-	2.24
T2 and T3 Matched (n=64)		10.6 (4.3)	9.1 (5.8)	-	-	0.03	0.28

SD= Standard deviation; *ASI*, Adaptive Stress index; [b] Cohen's *d*: The effect size (Cohen's *d*) for each outcome was calculated by comparing mean total scores between T1 and T2, T1 and T3, and T2 and T2. For interpretation of Cohen's *d*: small effect= 0.20; medium effect=0.50; large effect= 0.80.

Due to the multiple impact of the emerging COVID-19 crisis on retracing participants, we were forced to terminate the follow-up of our study population at three months. Nevertheless, in spite of attrition at that point, our findings showed consistent patterns of improvement over time across the three timepoints. Compared to other studies conducted in settings of displacement, IAT-G produced moderate to large effects on all outcomes from baseline to 3-month follow-up, with depression (1.9), anxiety (2.15), and functional impairment (2.24) recording the largest effect sizes. Furthermore, PSS and all other ASI indices each showed a large effect size of 1 and above, ranging from 1.15 to 1.65. These findings are comparable to our previous randomized trial with Rohingya and other Myanmar refugees in Malaysia [18]. The large effect size associated with improved functioning at posttreatment is notable given that functioning is critical to survival and adaptation for refugees living in challenging environments [55,56]. It is likely that IAT-G afforded

participants a systematic framework and structure for reflecting and sharing their lived experiences as refugees in a safe environment, a unique opportunity to which they had no prior exposure. In relation to the ASI indices, IAT-G had the largest effect on ASI-1 (safety and security), whereas ASI-2 (attachments and relationships) and ASI-5 (meaning of life) had smaller effects (considered large nevertheless) in comparison with the other ASI domains from baseline to 3-month follow-up.

The persisting higher score on ASI-2 may relate to the constraint on Rohingya on returning home to perform traditional burials or ceremonies for deceased family members; ongoing forced separation from close ones and worries about the safety of family members and loved ones left behind [46]; the loss of material possessions, culture, and the traditional ways of life; and the sense of injustice that surrounds these losses. The upheavals are compounded by the long-term ostracism and discrimination that the Rohingya experienced

Fig. 2. Mean total scores with 95% confidence interval for outcomes assessed at Baseline (T1), Posttreatment (T2) to 3-month Follow-up (T3).
Abbreviation: ASI = Adaptive Stress Index

prior to their flight and by their statelessness, factors that would generate feelings of despair and a loss of purpose and meaning in their lives. Further research is needed to examine whether there are benefits of adding further sessions of psychotherapy to address more fully these issues amongst displaced persons such as the Rohingya.

The findings on resilience warrant consideration. There is ongoing debate concerning the measurement of the construct, a complexity that is added to by the transcultural context [57-60]. It is noteworthy that there was a slight deterioration in resilience from baseline to three-month follow-up, a finding that may reflect the challenging conditions of the humanitarian camps. Furthermore, the crude index of resilience might have been inadequate in assessing the cultural and contextual nuances of resilience in this population. More research is needed to refine existing measures of resilience for diverse cultural groups. Furthermore, measures such as the ASI may provide a more refugee-specific indication of the domains of

adaptation that pertain to this context, noting that there was consistent change across all indices assessed by that instrument. Further studies are needed to identify the measures of adaptation and resilience that best record change on the overlapping constructs relevant to these domains.

The gender balance of participants in our study was notable given that women generally are more likely to initiate psychotherapy than men [61]. The evident high level of receptivity of IAT-G by both sexes is encouraging, suggesting that the focus and content is acceptable to both men and women.

This study provides evidence of the effectiveness and cultural fit of IAT with Rohingya refugees Bangladesh. The intervention was delivered by national staff and since the end of the data collection for this study, UNHCR and partners in Cox's Bazar have established a new cadre of Rohingya para-counselors who have been trained in identification and referral of people with mental health conditions

Table 4
Two-way comparisons of mean total scores (standard deviations) of mental health and psychosocial measures based on the sub-cohort (n = 58) who completed assessments across all three timepoints.

Outcomes	Baseline (T1, n=58) Mean (SD)	Posttreatment (T2, n=58) Mean (SD)	3-month Follow-up (T3, n=58) Mean (SD)	Mean T1 vs T2: p-values from paired t-test	Mean T1 vs T3: p-values from paired t-test	Mean T2 vs T3: p-values from paired t-test
Depression	15.5 (4.8)	6.7 (3.7)	6.1 (4.0)	<0.001	<0.001	0.29
Anxiety	13.2 (3.7)	5.9 (2.5) ↓[a]	4.7 (3.4) ↓[a, b]	<0.001	<0.001	0.004
Posttraumatic Stress	55.0 (15.5)	36.2 (8.5) ↓[a]	36.6 (11.7) ↓[a]	0.001	<0.001	0.75
Complicated bereavement	16.2 (18.6)	8.9 (10.0) ↓[a]	7.1 (9.9) ↓[a]	0.005	0.001	0.14
ASI composite	42.0 (20.0)	20.0 (9.9) ↓[a]	18.0 (11.4) ↓[a]	<0.001	<0.001	0.10
Resilience	18.6 (3.3)	14.7 (5.1) ↓[c]	17.6 (3.3) ↑[b]	<0.001	0.12	0.003
Functional impairment	23.4 (5.8)	10.3 (4.4)	9.1 (6.1)	<0.001	<0.001	0.09

SD= Standard deviation.
↓[a, b, c] Mean total scores were significantly lower relative to the scores from the previous assessment timepoint under comparison;
↑[b] Indicates mean score is significantly higher than first follow-up score.

and are able to provide basic psychosocial support. The next step is to train refugee psychosocial volunteers and para-counselors across the camps to provide brief and effective psychological therapies to other Rohingya using IAT, which is now validated in this humanitarian context. Further research is needed to replicate this model in other mass emergency contexts. To our knowledge, IAT is one of the brief and effective psychosocial interventions implemented in the real-world setting of a mass humanitarian emergency.

It is important to highlight that brief psychological interventions like IAT need to be delivered within a system of inter-related services. Not everyone with psychological distress needs a psychological intervention, and on the other side of the spectrum, people with severe mental health conditions (psychotic or manic symptoms, suicidal ideations) need more comprehensive clinical and community management [5]. UNHCR and partner organizations had well-established referral mechanisms in place to ensure that persons were directed to appropriate services [32,62].

IAT-G offers a distinct therapeutic framework and modality by assisting refugees to adapt to the psychosocial disruptions of their lives as they have experienced these changes over the trajectory of displacement, flight, and relocation. In this model, the implementation of evidence-based CBT techniques is more clearly anchored to the lived experience of being a refugee, assisting in contextualizing the strategies learned and thereby increasing their salience. The sheer process of articulating one's own chaotic experiences, organizing them, and making sense of them, is in itself therapeutic [20]. The broader strength of our study is that it indicated the feasibility of implementing a rigorous psychosocial intervention delivered by trained lay counselors in a setting of low literacy during a mass humanitarian emergency. Furthermore, a focus on disrupted five psychosocial systems which are of universal significance to refugees, appears to make intuitive sense to survivors of forced displacement and systematic oppression, providing a coherent framework to organize these experiences and to motivate them to use CBT techniques to strengthen their capacities for dealing with past, present, and future challenges.

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Author's contribution

AKT, DS, PV conceived and designed the study; AKT, MAAM, SK, AMA, MM, ME implemented and supervised the project; AKT and MM analyzed the data; AKT, MM, DS, PV drafted the manuscript; AMA, SO, MM, ME, HA reviewed the manuscript; all coauthors approved the final manuscript.

Data sharing statement

Requests to access to de-identified data will be determined by the lead investigators after review of the proposal with a signed data access agreement.

Declaration of Interests

AKT received a fellowship from the NHMRC during the study; SO, PV, MM and HUA were employees at the United Nations, DS was the Principal Investigator on a NHMRC Program Grant. All the other authors report no conflicts.

Declaration of Competing Interest

None.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.eclinm.2021.100999.

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