The effect of a low-level psychological intervention (PM+) on post-migration living difficulties – Results from two studies in Switzerland and in the Netherlands

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ABSTRACT

Aims of the study: After arriving in host countries, most refugees are confronted with numerous post-migration stressors (e.g., separation from family, discrimination, and employment difficulties). Post-migration living difficulties (PMLDs) significantly contribute to the development and persistence of mental disorders. Effective treatment approaches focusing on reducing post-migration stress are urgently needed. The aim of the present study was to examine the effect of a brief psychological intervention, Problem Management Plus (PM+), on PMLDs among Syrian refugees in two European countries.

Methods: We merged data from two single-blind feasibility trials with Syrian refugees experiencing elevated levels of psychological distress and impaired functioning in Switzerland ($N = 59$) and the Netherlands ($N = 60$). Participants were randomised to receive either five sessions of PM+ or an enhanced care-as-usual control condition. PMLDs were assessed at baseline and 3 months after the intervention. To estimate treatment effect on PMLD, linear mixed model analysis was performed.

Results: Three months after the intervention, participants in the PM+ condition reported significantly fewer PMLDs compared to the control condition. Further analyses at item-level showed that interpersonal and family related PMLDs, such as "worries about family back home" significantly improved over time in the PM+ condition.

Conclusions: This exploratory study suggests that brief psychological interventions have the potential to reduce PMLDs in refugees and asylum seekers. The reduction of post-migration stress in turn may subsequently lead to an overall reduction in psychological distress.

Clinical Trial Numbers: BASEC Nr. 2017–0117 (Swiss trial) and NL61361.029.17, 7 September 2017 (Dutch trial).

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1. Introduction

Recent crises in the Middle East and Eastern Europe have resulted in the highest number of refugees since the Second World War and an unprecedented increase of refugees seeking asylum in Europe. As of mid-2022, there were over 103 million people worldwide forcibly displaced by war and conflict, of whom over 27 million are refugees and asylum seekers respectively [1]. Refugees demonstrate high rates of trauma-related disorders, such as depression, anxiety, and post-traumatic stress disorder (PTSD) [2,3].

Not only have refugees often experienced potentially traumatic events, such as experiences of war or torture in their home countries or life-threatening experiences during displacement [e.g., [4]], they also face substantial post-migration living difficulties (PMLDs) in the resettlement environment, including worrying about family back home, facing discrimination in the host country or difficulties learning the local language [5]. These difficulties can also include socioeconomical and interpersonal stressors, as well as stressors relating to the asylum process and immigration policies [5–8]. While a dose-response relationship between exposure to potentially traumatic events and mental health distress has long been established [9,10], more recent literature has investigated the effect of post-migration stressors on the mental health of refugees and asylum seekers. Many studies have found significant relationships between post-migration stressors and common mental disorders, such as depression, anxiety, and PTSD [6,7,11–14], indicating that post-migration living difficulties negatively affect refugees' mental health, psychological functioning and well-being to an equal or even greater extent than the exposure to traumatic events [11,13,15,16]. In addition, the relation between PMLDs and psychological distress seems to be bidirectional, rather than linear, as symptoms of psychological distress (e.g., difficulty sleeping), might affect the ability to learn a new language and thus lead to poorer integration [17]. Post-migration stressors, such as difficulty learning the locally spoken language, might then result in greater psychological distress.

One difficulty that arises in providing psychotherapeutic treatment for refugees and asylum seekers is the substantial number of exile-related stressors and structural problems in everyday life (e.g., no work permit, housing problems, etc.) [18–21]. These ongoing stressors make it difficult for clients to find safety and stability and might thus limit the efficacy of common treatment approaches [22]. A study by Djelantik and colleagues [23] investigating an intervention for bereaved refugees revealed that a higher number of post-migration stressors led to a reduction in treatment effect and more non-completion of treatment. Similarly, Schick and colleagues [12] found in a treatment-seeking sample that an improvement in post-migration stress predicted a favourable treatment outcome regarding symptoms of depression and anxiety. In addition, a qualitative study with male Iraqi refugees showed that the main reason for seeking therapy was exile-related difficulties and not pre-displacement traumatic experiences [24]. Mental health professionals working with refugees have expressed the need to help refugees with their practical problems in addition to emotional problems [25]. Thus, to provide adequate treatment for refugees, holistic, multi-modal treatment approaches addressing social, materialistic, as well as psychological conditions, might be needed [11,22,26,27].

One intervention which actively addresses emotional as well as practical problems is the low-intensity psychological intervention Problem Management Plus (PM+) [28]. Initially developed by the World Health Organization (WHO) for people exposed to adversities, particularly in low- and middle-income settings with a large treatment gap [29,30], the intervention has recently been successfully tested in high-income countries [31,32]. PM+ is a brief, non-specialist delivered intervention that has proven to be effective in improving symptoms of general psychological distress, depression, anxiety, and PTSD in various study populations and settings [29,30,33,34]. However, to date, no study has been conducted on the effect of PM+ on reducing PMLDs in refugees and asylum seekers. Thus, the aim of this study was to perform an exploratory analysis of the effect of PM+ on PMLDs among Syrian refugees in two European countries (Switzerland and the Netherlands).

2. Methods

2.1. Setting

STRENGTHS (Syrian Refugees Mental Health Care Systems) is a research project aiming to test the feasibility, (cost-) effectiveness and implementation of the low intensity intervention PM+ among Syrian refugees in various countries in Europe and the Middle East [35]. The data were collected as part of two feasibility randomised controlled trials (RCTs) assessing the feasibility and acceptability of individual PM+ among Syrian refugees and asylum seekers in Switzerland and the Netherlands. In Switzerland, the screenings, assessments and intervention sessions were held at the Outpatient Clinic for Victims of Torture and War, University Hospital Zurich, and at two collaborating centres in Berne and St. Gallen. The trial received ethical approval from the Ethics Committees of the Canton of Zurich (BASEC Nr. 2017–0117) and was registered online (NCT03830008). In the Netherlands, the trial was carried out in collaboration with Stichting Nieuw Thuis Rotterdam, a local foundation providing support to Syrian refugee families in Rotterdam. The study was approved by the Research Ethics Review Committee at VU Medical Center, the Netherlands (Protocol ID: NL61361.029.17, 7 September 2017) and preregistered online (https://www.trialregister.nl/trial/6664).

2.2. Participants

Participants were Syrian refugees and asylum seekers experiencing elevated levels of psychological distress and reduced psychosocial functioning. Interested individuals were included in the trial if they were 1) Syrian refugees and asylum seekers who arrived in Switzerland or the Netherlands after the outbreak of the Syrian civil war in 2011, 2) 18 years or older, 3) Arabic-speaking, and if they experienced 4) elevated levels of psychological distress (Kessler Screening Scale for Psychological Distress (K10) > 15) [36], and 5) impaired psychosocial functioning (WHO Disability Assessment Schedule (WHODAS 2.0 > 16) [37]. Individuals were excluded from the trials if they had a) severe cognitive impairment, b) severe mental disorders (e.g., psychosis), or c) an acute risk of suicidality as assessed with the PM+ manual observation checklist. Further exclusion criteria in Switzerland were d) being under guardianship, and e) inability to follow the study procedures. In the Netherlands, participants were recruited from community settings from a non-governmental organization supporting Syrian refugee families with housing, language courses and other types of social support. The two main recruitment strategies were presenting the study in language classes and contacting community workers working with refugees. In Switzerland, participants were recruited from refugee and asylum shelters, community settings and through social media and local stakeholders in the Syrian community throughout the German-speaking part of Switzerland.

2.3. Study procedures

The data were collected from April 2018–March 2019 (the Netherlands) and December 2018–March 2020 (Switzerland). Interested individuals contacted the research team via phone or email and were informed about the purpose of the study. The participants provided electronic (Switzerland) or written informed consent (the Netherlands) prior to participating in the study. If participants screened positive, they were invited for a baseline assessment. After completing the baseline assessment, they were randomised on a 1:1 basis to either the PM+ condition or the control condition by an independent research assistant not involved in the study procedures. In Switzerland, randomisation was performed by tossing a coin, whereas in the Netherlands a

randomisation list was created in R statistical software by an independent researcher not involved in the rest of the study. The participants were invited to a post-assessment (approximately six weeks after the baseline assessment) and a three-month follow-up assessment (approximately three months after the post-assessment). The assessments were carried out by Arabic-speaking assessors, and the PM+ sessions were delivered in Arabic by non-specialist helpers [35].

A detailed description of the training, the supervision process and the full study procedures for both study sites are described elsewhere [32,38].

2.4. Treatment conditions

2.4.1. Problem management plus (PM+)

PM+ is a non-specialist, transdiagnostic psychological intervention developed by the World Health Organization (WHO) [28,39]. PM+ aims at decreasing symptoms of mental health distress in adversity-affected populations and contains evidence-based behavioural treatment and problem-solving strategies [28]. It consists of five weekly 90-min sessions. During the intervention, four core strategies are introduced to the participants: 1) stress management (diaphragmatic breathing), which is introduced in the first session, 2) problem solving, which is taught in the second session, 3) behavioural activation, which is part of the third session and finally, 4) accessing and providing social support, which is introduced in the fourth session. The fifth session encompasses a review of the four strategies and on relapse prevention [28]. The sessions are delivered by supervised non-specialist "helpers". In the present trials, the PM+ helpers were Syrians and delivered the PM+ intervention in Arabic. The PM+ intervention bypasses common barriers to service uptake in refugee populations, e.g., lack of funding for interpreters or mental health stigma [18,40], as these helpers do not have a background in psychology but come from the same cultural background and deliver the intervention in the participants' mother tongue. The helpers completed an eight-day training course, which incorporates theoretical knowledge on adversities and psychological distress, the 4 PM+ strategies, as well as basic helping skills and psychological first aid. Moreover, they received continuous supervision from PM+ trainers and mental health experts [28].

2.4.2. Control condition

In both countries, participants randomised to the control condition were informed that they could contact their general practitioner in case of any health problem. Participants in Switzerland additionally received a booklet explaining the Swiss health care system in Arabic [41].

2.5. Measures

Exposure to potentially traumatic experiences was measured with a Traumatic Experiences Checklist for Syrian refugees, which is a combination of items of the Posttraumatic Diagnostic Scale [42], the Harvard Trauma Questionnaire [43] and additional items relevant for Syrian refugees based on previous research and clinical experience. The measure consists of 27 items which are rated on a dichotomous scale ("yes" or "no"). Overall trauma exposure is represented by the sum of all items.

The extent of exposure to post-migration stress was derived from the Post-Migration Living Difficulties Checklist (PMLDC) [44,45]. The questionnaire has frequently been used in research with refugee populations [7,12,46]. The checklist consists of 17 potential post-migration stressors (e.g., "*Separation from family*" or "*Not being recognized as a refugee*") which are rated on a scale from 0 ("Was not a problem / did not happen") to 4 ("A very serious problem"). A PMLD severity score is represented by the sum of all items. To estimate a total count of post-migration living difficulties, items rated at least "moderately serious" were considered as a problem and the sum was computed (total range 0–17).

We also examined whether health and other service use, as well as productivity losses differed between the PM+ and control conditions at 3 month follow up. These data were collected using the Client Service Receipt Inventory (CSRI) [47], an instrument widely used for this purpose in populations with mental health problems, including refugees. This was tailored to both the Dutch and Swiss contexts and translated into Arabic for use with Syrian refugees to self-report health service utilisation, as well as changes in informal care use and/or time in employment between baseline and 3 month follow-up. Questions on health care service use for both countries were very similar allowing service utilisation data to be pooled across both countries.

2.6. Data analysis

All analyses were performed in SPSS, version 26. Descriptive statistics of participant characteristics and outcomes on traumatic exposure and post-migration stressors were calculated with a mean (*M*), standard deviation (*SD*) and/or percentages (%). To estimate the difference in change from baseline to the post- and three-month follow-up assessments, intention-to-treat linear mixed model analysis was used. We tested the effect of a full factorial model including the factors country (NL vs. CH), condition (PM+ vs. control condition) and time (baseline, post assessment, three-month follow-up) as well as all possible interactions on PMLD. We expected no significant effect of country on PMLD, which would allow us to combine the data of the samples. Thus, any effect involving country (e.g., country x condition x time) should be non-significant. Crucial for being able to show a differential effect of treatment on PMLD the interaction between condition x time should become significant. In this case, based on estimated marginal means, post-hoc comparisons of time points within each condition as well as between-condition comparisons at the time points can provide further information. The effect size Cohen's d was calculated by dividing the mean difference between the two conditions by the pooled standard deviation at three month follow-up. Analysis on item-level (baseline to three month follow-up) was performed with McNemar's test for both conditions separately. To estimate whether there had been a difference in service use between the two conditions, mean differences in the use of health services, as well as in days of productivity losses between baseline and 3-month follow up between the two groups were analysed and uncertainty in resource use distribution was accounted for using bias-corrected and accelerated bootstrapping.

3. Results

3.1. Participant characteristics

The average age across both samples was 39 years ($M = 38.95$, $SD = 11.14$; $M_{CH} = 39.89$, $SD_{CH} = 9.90$; $M_{NL} = 38.08$, $SD_{NL} = 12.18$).). The combined sample consisted of $n = 66$ female and $n = 53$ male participants. In both samples, the participants reported approximately 10 potentially traumatic events on average ($M = 10.15$; $SD = 5.63$; $M_{CH} = 10.10$, $SD_{CH} = 5.03$; $M_{NL} = 10.20$, $SD_{NL} = 6.21$). There were no significant differences between the two samples regarding age ($t(113) = -0.87$, $p = .39$), gender ($\chi2(1) = 1.0$, $p = .32$), educational level ($z = -0.64$, $p = .52$) or exposure to potentially traumatic events ($t(117) = 0.10$, $p = .92$). However, the average length of stay in the host country differed between the samples ($M_{CH} = 40.15$ months, $SD_{CH} = 25.53$, $M_{NL} = 22.47$ months, $SD_{NL} = 9.80$; $t(69) = 4.81$, $p < .001$). At baseline, PMLD-scores did not differ significantly between the two conditions ($F = 3.70$; $df = 1, 131$; $p = .06$). Participant characteristics for both samples are presented in Table 1.

3.2. Frequencies of post-migration living difficulties

At baseline, participants reported on average seven post-migration living difficulties ($M = 7.34$, $SD = 3.63$) as at least moderately

Table 1
Participant characteristics at baseline.

	NL (N = 60)	CH (N = 59)
	M (SD) / n (%)	M (SD) / n (%)
Age (years)	38.1 (12.2)	39.9 (9.9)
Gender		
Female	36 (60.0%)	30 (50.8%)
Male	24 (40.0%)	29 (49.2%)
Marital Status		
Never Married	6 (10.0%)	10 (16.9%)
Married	42 (70.0%)	42 (71.2%)
Separated / Divorced	10 (16.7%)	6 (10.2%)
Widowed	1 (1.7%)	1 (1.7%)
Education		
No Education	1 (1.7%)	1 (1.7%)
Basic Education	29 (48.3%)	25 (42.4%)
Secondary Education	20 (33.3%)	21 (35.6%)
University Degree	9 (15.0%)	12 (20.3%)
Work Permit		
Yes	45 (75.0%)	43 (72.9%)
No	13 (21.7%)	16 (27.1%)
Work Status		
Paid Work	2 (3.3%)	21 (35.6%)
Non-paid work	18 (30.0%)	14 (23.7%)
Student	34 (56.7%)	7 (11.2%)
Unemployed	5 (8.3%)	12 (20.3%)
Other	1 (1.7%)	4 (6.8%)
Trauma Exposure*	10.2 (6.2)	10.1 (5.0)

Note. NL = The Netherlands, CH = Switzerland.
 * Number of potentially traumatic events.

serious. There was no significant difference between the two samples regarding reported post-migration living difficulties at baseline ($t(112) = -1.09$, $p = .28$). In both samples, the most frequently reported PMLD was "worries about family back home" (NL: 78.3%; CH: 78.0%). While in the Dutch sample, other prominent PMLDs were "difficulties in learning the Dutch language" (78.3%), "communication difficulties" (66.7%) and "loneliness, boredom, or isolation" (65.0%), participants in the Swiss trial frequently reported "difficulties with employment" (66.1%), "difficulties obtaining appropriate accommodation" (64.1%) and "separation from family" (62.7%) as moderately serious to very serious. A detailed overview of reported PMLDs in both samples can be found in the Appendix.

3.3. Treatment effect on post-migration living difficulties

Full factorial mixed models analysis revealed no main effect of country ($F = 1.92$; df = 1, 127; $p = .17$) and condition ($F = 0.83$; df = 1, 113; $p = .37$) on PMLD. The main effect of time was significant ($F = 23.4$; df = 2, 85; $p < .001$). Most importantly, we found a statistically significant condition x time effect ($F = 5.19$; df = 2, 85; $p = .007$) indicating a different course of PMLDs in favour of PM+. Compared to the baseline we found a statistically significant reduction of the PMLD sum score at three months follow-up in both conditions. However, the reduction in the PM+ condition was larger than in the control condition (Mean difference = -9.90, SE = 1.44, p < .001 vs. Mean difference = -3.52, SE = 1.50, $p = .021$). Effect size for this different course of PMLD was moderately high (Cohen's d = 0.58). All other interactions (country x condition, country x time, country x condition x time) were non-significant (see Fig. 1).

3.4. Course of post-migration living difficulties: item-level analysis

An overview of the results can be found in Tables 2 and 3. *P*-values marked in bold were statistically significant using a Bonferroni correction for 17 comparisons ($p < .003$). The item-level analyses revealed that in the PM+ condition the items "separation from family," "worrying about family back home," "being fearful of being sent back to country of origin" and "difficulties obtaining appropriate accommodation" improved significantly from T1 (baseline assessment) to T3 (three months follow-up). In the control condition there was no significant improvement of any PMLD at an item-level.
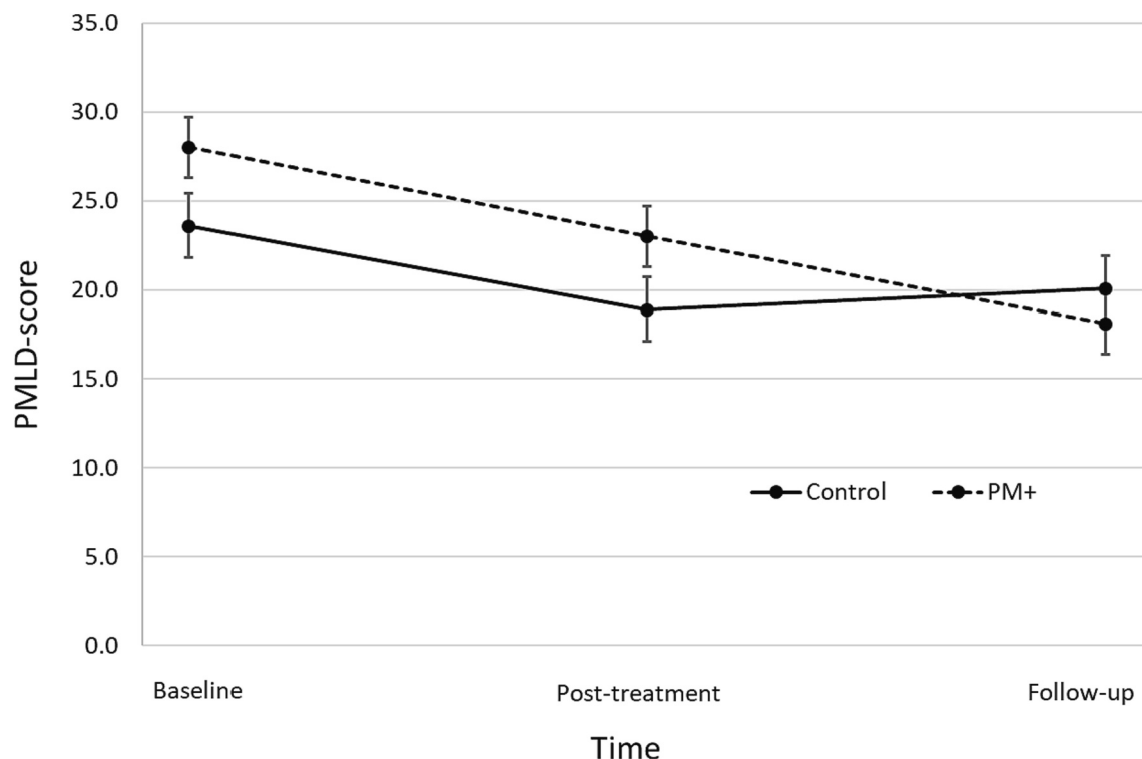
Fig. 1. Course of Post-Migration Living Difficulties from baseline to three months follow-up in the two treatment conditions (Estimated Means of PMLD-scores with Standard Errors).

Table 2
Change in post-migration living difficulties rated as moderately serious to very serious in the PM+ condition (N = 49).

PMLD type	n (%)		
	T1	T3	P[a,b]
Communication difficulties	29 (59.2%)	20 (40.8%)	0.049
Discrimination	15 (30.6%)	11 (22.4%)	0.388
Conflicts with your own / other ethnic groups in host country	10 (20.4%)	4 (8.2%)	0.109
Separation from family	34 (69.4%)	21 (42.9%)	**< 0.001**
Worries about family back home	39 (79.6%)	25 (51.0%)	**< 0.001**
Unable to return home in emergency	30 (61.2%)	24 (49.0%)	0.210
Difficulties with employment	35 (71.4%)	23 (46.9%)	0.023
Difficulties in interviews with immigration officials	12 (24.5%)	4 (8.2%)	0.021
Conflicts with social workers / other authorities	9 (18.4%)	5 (10.2%)	0.219
Not being recognized as a refugee	5 (10.2%)	8 (16.3%)	0.250
Being fearful of being sent back to your country of origin in the future	28 (57.1%)	15 (30.6%)	**0.002**
Worries about not getting access to treatment for health problems	20 (40.8%)	10 (20.4%)	0.013
Not enough money to buy food, pay the rent or buy necessary clothes	24 (49.0%)	17 (34.7%)	0.039
Difficulties obtaining financial assistance	15 (30.6%)	5 (10.2%)	0.006
Loneliness, boredom, or isolation	26 (55.3%)	19 (40.4%)	0.118*
Difficulties learning one of the national languages	34 (70.8%)	24 (50.0%)	0.021**
Difficulties obtaining appropriate accommodation	33 (67.3%)	18 (36.7%)	**< 0.001**

* n = 47.
** n = 48.
a = McNemar's test.
b = levels in bold are p < .003 (Bonferroni corrected level of significance).

Table 3
Change in post-migration living difficulties rated as moderately serious to very serious in the control condition (N = 44).

PMLD type	n (%)		
	T1	T3	p[a]
Communication difficulties	23 (53.5%)	18 (41.9%)	0.332*
Discrimination	9 (20.9%)	7 (16.3%)	0.754*
Conflicts with your own / other ethnic groups in host country	4 (9.3%)	2 (4.7%)	0.625*
Separation from family	24 (54.5%)	19 (43.2%)	0.302
Worries about family back home	35 (79.5%)	31 (70.5%)	0.388
Unable to return home in emergency	25 (56.8%)	24 (54.5%)	1.00
Difficulties with employment	25 (56.8%)	18 (40.9%)	0.092
Difficulties in interviews with immigration officials	7 (15.9%)	5 (11.4%)	0.754
Conflicts with social workers / other authorities	2 (4.5%)	4 (9.1%)	0.625
Not being recognized as a refugee	5 (11.4%)	5 (11.4%)	1.00
Being fearful of being sent back to your country of origin in the future	18 (40.9%)	24 (54.5%)	0.031
Worries about not getting access to treatment for health problems	17 (38.6%)	8 (18.2%)	0.022
Not enough money to buy food, pay the rent or buy necessary clothes	19 (43.2%)	14 (31.8%)	0.302
Difficulties obtaining financial assistance	7 (15.9%)	7 (15.9%)	1.00
Loneliness, boredom, or isolation	30 (68.2%)	24 (54.5%)	0.146
Difficulties learning one of the national languages	32 (72.7%)	27 (61.4%)	0.302
Difficulties obtaining appropriate accommodation	18 (40.9%)	11 (25.0%)	0.092

* n = 43.
a = McNemar's test.

3.5. Changes in health service utilisation and productivity losses

At baseline there were no significant differences in overall use of all community delivered health services, hospital care or productivity loss over the previous three months between participants in the two countries. Participants in Switzerland at baseline did though have significantly greater mean rates of contact time with psychiatrists (mean difference 50.09 contact minutes, [13.38, 94.89] p = .367. This significant difference in use of psychiatrists between countries was not found at follow-up time points. There were also no significant differences in health service utilisation and productivity losses at baseline between the PM+ and control condition. This remained the case at 3 month follow up for all elements of service utilisation and productivity loss (see Table 4). Individuals in the PM+ condition did have more contact with all community delivered health services, including psychiatric services, 295 versus 179 contact minutes but this was not significant (mean difference 116.72, [−37.83, 271.27] p = .137). There remained very little use of hospital services in both PM+ and comparator conditions.

4. Discussion

In the current study, we analysed the effect of the low-intensity psychological intervention PM+ on PMLDs in Syrian refugees and asylum seekers resettled in Switzerland and the Netherlands. The participants reported on average seven post-migration living difficulties, with "worrying about family back home" being reported most frequently in both countries. We found a significant decrease in PMLD severity between baseline and three months-follow-up in the PM+ condition relative to the control condition. Additionally, a more exploratory analysis at an item-level revealed that in the PM+ condition, there was a change in interpersonal post-migration living difficulties, e.g., "worries about family back home" or "separation from family" at three months follow-up. No such effect was found for the control condition. There were no significant changes in health service utilisation at three month follow-up between the two groups, but longer term follow up analysis may be needed; previous analyses in Switzerland, for example, have shown longer term that more poorly managed mental health in refugees may be associated with the need for more expensive mental and physical health service use [48].

Our results show that the low-intensity psychological intervention PM+ has the potential to reduce post-migration distress in refugees. The reduction of post-migration stressors might lead to an overall decrease of mental health distress and enhanced psychological functioning [11–13,16]. Specifically, the PM+ strategies appear to enable refugees to better deal with specific interpersonal and social PMLDs. One core strategy of PM+ is "problem management" in which participants 1) distinguish between solvable and unsolvable problems, 2) choose a solvable problem, 3) define the problem, 4) brainstorm solutions, 5) choose a helpful solution, and 6) finally outline an action plan [28,39]. The most frequently reported PMLD at baseline was "worrying about family back home". Thus, it might be that PM+ participants have chosen this problem in the "problem management" session and worked on practical solutions to better cope with this challenge. Another strategy of PM+ is "strengthening social support." In this strategy, the importance of receiving but also providing social support is outlined to strengthen the support system of the beneficiaries and design a concrete action plan [28,39]. It is likely that this strategy is also helpful for individuals who report interpersonal and social stressors. Qualitative evaluations of PM+

Table 4
Mean difference in cumulative service utilisation per participant at 3-Month follow-up.

Type of Contact	PM+ N = 61	Control N = 58	Mean Difference (BCa 95% CI)*	p
Health Service Utilisation, *M (SD)*				
Community health worker (minutes)	1.48 (5.94)	1.74 (8.81)	−0.27 (−3.20, 2.32)	0.848
Community-based doctor (minutes)	42.63 (75.67)	42.68 (80.48)	−0.05 (−31.05, 24.90)	0.999
Psychiatrist (minutes)	52.05 (142.15)	25.54 (112.28)	26.51 (−19.07, 72.03)	0.267
Psychologist (minutes)	35.90 (163.29)	21.19 (108.89)	14.71 (−31.36, 62.41)	0.581
Psychiatric Nurse (minutes)	0.00 (0.00)	3.88 (21.13)	−3.88 (−9.43, 1.68)	0.140
Social worker (minutes)	71.95 (221.22)	37.43 (127.83)	34.52 (−24.26, 104.93)	0.315
Physiotherapist (minutes)	81.39 (311.07)	44.66 (153.26)	36.74 (−32.29, 109.38)	0.463
Crisis service psychiatry (minutes)	1.48 (11.52)	0.00 (0.00)	1.48 (−1.48, 4.43)	0.114
Other care (minutes)	7.38 (57.62)	0.00 (0.00)	7.38 (−7.40, 22.13)	0.115
Psychiatric inpatient stay (nights)	0.00 (0.00)	0.00 (0.00)	N/A	N/A
Other inpatient stay (nights)	0.02 (0.13)	0.17 (1.31)	−0.16 (−0.60, 0.05)	0.356
Hospital Emergency Department (contact)	0.03 (0.18)	0.03 (0.18)	−0.001 (−0.71, 0.06)	0.960
Psychiatric outpatient (contact)	0.00 (0.00)	0.00 (0.00)	N/A	N/A
Other outpatient (contact)	0.39 (0.94)	0.27 (1.10)	0.12 (−0.27, 0.50)	0.527
Complementary and Alternative Medicine (minutes)	1.01 (5.32)	1.43 (4.73)	−0.42 (−2.24, 1.41)	0.653
All community (minutes)	295.26 (457.99)	178.54 (392.05)	116.72 (−37.83, 271.27)	0.137
All hospital (contacts/ visits)	0.44 (0.94)	0.48 (1.79)	−0.03 (−0.68, 0.47)	0.900
Productivity Loss (days)	1.42 (6.61)	0.91 (3.05)	0.51 (−0.98, 2.34)	0.586

* Bias corrected and accelerated bootstrapping.

examining the domains of change PM+ participants show similar effects [32,49]. In these studies, participants reported interpersonal changes and increased social interactions but also greater knowledge on how to handle adversities and deal with problems [32,49].

4.1. Implications for practice and research

Our results have several implications for practice and research. First, the results suggest that the low-intensity psychosocial intervention PM+ has the potential to help refugees deal with interpersonal and family related PMLDs. Interestingly, a longitudinal study by Schick and colleagues [12] that investigated changes in PMLDs in a treatment-seeking sample revealed that most of the changes were related to the residence status while no improvement in interpersonal stressors could be noticed. In that case, treatment comprised manualised trauma-specific treatment, as well as more general psychotherapeutic interventions, medication and social counselling. While it is indisputable that psychosocial interventions shall not replace specialised mental health care, our findings highlight the potential of psychosocial interventions such as PM+ and stress the importance of the implementation of multimodal treatments and stepped-care approaches. A stepped-care approach including psychosocial interventions, as well as specialised mental health care, has been implemented in Germany already [50]. Low-intensity interventions could even be more acceptable to refugees and

asylum seekers as they focus on managing everyday life problems and not on exposure to past traumatic experiences, and might be less stigmatizing as they are delivered by peers rather than by mental health professionals. In addition, the approach of low-intensity interventions might be more what refugees expect of treatment (e.g., focus on practical issues [25]).

Another implication relates to further research and the advancements of PM+. We have shown that the generic version of PM+ might have the potential to enable refugees to better deal with specific PMLDs. However, in future research it is important to explore the mechanisms on how the PM+ participants are able to reduce psychological distress by post-migration living difficulties and to examine which strategies prove to be especially beneficial. Moreover, it would be interesting to further develop PM+ and adapt it to refugees' needs in high-income countries by developing additional modules targeting post-migration distress. One example is the adapted PM+ version by Knefel and colleagues [51,52] who added two strategies focusing on PMLDs (anger management and enhancing self-efficacy) to the generic version of PM+ for Afghan refugees with promising results [51].

4.2. Limitations

Our study faced several limitations. First, the data came from two feasibility RCTs with relatively small sample sizes for which no power calculations were performed. Even though our results are promising, the analyses performed were of exploratory nature to generate hypotheses on the effectiveness of PM+. Thus, our results should be interpreted with care and should be replicated in a fully powered RCT [35]. Second, it is important to note that both trials were part of the STRENGTHS project, but were slightly different with regard to their study procedures (e.g., minor differences in the control conditions due to country-specific factors). Third, while in both samples, the majority of the participants reported having a work permit in their host country, in Switzerland there was a high percentage of individuals working whereas in the Netherlands the majority of the participants reported that "studying" was their main activity. It is likely that "studying" refers to participating in Dutch language courses as opposed to pursuing an academic education given the fact that the participants in the Netherlands were recruited from a non-governmental organization which offered intensive language courses. In addition, the level of education in the sample was rather low which makes it unlikely that the majority of the subsample enrolled at university. This contrast in working status might indicate a difference in integration policies between the two countries. In the Netherlands, refugees who have been granted a residence permit have to take an integration and Dutch language proficiency exam within three years [53]. The average length of stay in the host country in the Dutch subsample was around two years which indicates that the majority of the participants were in the process of preparing for this exam and therefore intensively studying the Dutch language. While there are specific integration measures in Switzerland (e.g., the "Integrationsagenda Schweiz", an integration program by the state and the cantons [54]), no such exam exists in the Swiss system. Interestingly, even though the majority of the Swiss sample stated that they were currently working, difficulties with employment were reported as the second most common PMLD. In a similar vein, qualitative studies exploring living difficulties of Syrian refugees and asylum seekers found that refugees residing in Switzerland reported employment problems as a common practical problem, which encompassed problems to find a job in their original profession and/or difficulties in continuing their academic education [8,55]. While there might be differences in asylum and integration procedures or differences in health care utilisation between the two samples (e.g., prior contact with psychiatrists at baseline), it is important to note that there was no significant difference in the number of post-migration stressors between the two subsamples and that in both countries, interpersonal post-migration living difficulties were mentioned as a serious problem most frequently. Moreover, the results

showed that the subsamples were not significantly different from each other, which allowed the samples to be combined and analysed. Nonetheless, the results are of exploratory nature and thus, should be interpreted with care and replicated in future research.

Furthermore, it is important to note that all participants came from Syria and, in case of the Dutch sample, received a positive result on their asylum claim and reported a shorter average length of stay in their host country. The protection rate (i.e., the percentage of granted asylum claims and the percentage of temporary admissions taken together) for Syrian refugees in Switzerland 2021 was 85.7% [56], while the protection rate for all refugees was much lower (60.7%) [57]. Therefore, the results of our study might not generalise to populations including, for example, individuals with a higher risk of a rejection or undocumented migrants. Further research should include heterogeneous samples to provide a more complete picture of the effectiveness of PM+ and, possibly, its limits.

Another limitation concerns the recruitment method and referral pathways might have led to a self-selection bias. Participants were recruited from different sites (asylum shelters, community settings, social media, etc.) but interested individuals had to contact the research team themselves. This might have influenced the sample composition and thus, the results, as the sample consisted of individuals who were actively seeking support. In addition, the settings in which the trials were carried out were slightly different. In the Netherlands, the study was carried out by a university in collaboration with a non-governmental organization while in Switzerland the trial was implemented by a university hospital. It is important to note that study participants in Switzerland were not recruited from the university hospital (i.e., they were not patients seeking treatment at that institution), yet the difference in settings could have been a potential source of bias. We note a final limitation, which concerns the control condition and their use of healthcare services. In both samples, the participants in the control condition received (enhanced) care as usual tailored to the standard care in the country of the study. In both cases, care as usual included all available health services, including psychotherapy. In the Swiss subsample, participants within the control condition received information on the Swiss health care system in Arabic [41]. Even though there were no significant differences in health service utilisation between the conditions in both samples and service uptake was generally low, we did not actively control for additional treatment in both conditions.

5. Conclusions

Our study revealed the potential of the low-intensity intervention

PM+ to reduce post-migration living difficulties in refugees and asylum seekers. More specifically, PM+ seems to have an effect on family related, interpersonal stressors, such as "worrying about family back home" or "being separated from family". The reduction of post-migration stress in turn may lead to an overall reduction of mental health distress of refugees and asylum seekers. Further research is needed to replicate our results in a fully powered sample and to explore the long-term benefits, as well as impacts on health service utilisation, of PM+. Our findings contribute to the rapidly expanding evidence highlighting the effectiveness of low-intensity interventions reducing psychological distress in refugee populations and supports for larger implementation and scale-up initiatives to make these interventions more widely available.

Disclosure statement

No potential conflict of interest was reported by the author (s).

Data availability

The Vrije Universiteit Amsterdam (VU) will keep a central data repository of all data collected in the STRENGTHS project. The data will be available upon reasonable request to the STRENGTHS consortium. Data access might not be granted to third parties when this would interfere with relevant data protection and legislation in the countries participating in this project and any applicable EU legislation regarding data protection. Interested researchers can contact Dr. Marit Sijbrandij at e.m.sijbrandij@vu.nl to initiate the process.

Appendix A. Appendix

Table 1
PMLD reported as moderately serious to very serious at baseline in the Swiss sample (N = 59).

PMLD	n	%
Worries about family back at home	46	78.0
Difficulties with employment (being permitted to work, finding work, bad working conditions, etc.)	39	66.1
Difficulties obtaining appropriate accommodation	38	64.4
Separation from family	37	62.7
Unable to return home in emergency	36	61
Difficulties in learning the German language	34	57.6
Loneliness, boredom, or isolations	33	55.9
Being fearful of being sent back to your country of origin in the future	28	47.5
Not enough money to buy food, pay the rent or buy necessary clothes	28	47.5
Communication difficulties	26	44.1
Discrimination	21	35.6
Worries about not getting access to treatment for health problems	19	32.2
Difficulties obtaining financial assistance	16	27.1
Not being recognized as a refugee	15	25.4
Conflicts with social workers/other authorities	14	23.7
Difficulties in interviews with immigration officials	13	22.0
Conflicts with your own/other ethnic groups in CH	12	20.3

Table 2

PMLD reported as moderately serious to very serious at baseline in the Dutch sample (N = 60).

PMLD	n	%
Worries about family back at home	47	78.3
Difficulties in learning the Dutch language	47	78.3
Communication difficulties	40	66.7
Loneliness, boredom, or isolations	39	65.0
Difficulties with employment (being permitted to work, finding work, bad working conditions, etc.)	34	56.7
Being fearful of being sent back to your country of origin in the future	33	55.0
Separation from family	32	53.3
Unable to return home in emergency	31	51.7
Worries about not getting access to treatment for health problems	26	43.3
Not enough money to buy food, pay the rent or buy necessary clothes	25	41.7
Difficulties obtaining appropriate accommodation	24	40.0
Difficulties obtaining financial assistance	15	25.0
Difficulties in interviews with immigration officials	10	16.7
Discrimination	8	13.3
Conflicts with your own/other ethnic groups in NL	6	10.0
Conflicts with social workers/other authorities	2	3.3
Not being recognized as a refugee	–	–

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