Established in 1871
Swiss Medical Weekly
Formerly: Schweizerische Medizinische Wochenschrift
The European Journal of Medical Sciences

Original article | Published 12 November 2013, doi:10.4414/smw.2013.13875
Cite this as: Swiss Med Wkly. 2013;143:w13875

Culturally sensitive group therapy for Turkish patients suffering from chronic pain: a randomised controlled intervention trial

Marina Sleptsova, Brigitta Wössmer, Paul Grossman, Wolf Langewitz

Division of Psychosomatic Medicine / Internal Medicine, University Hospital Basel, Switzerland

Summary

SUMMARY OF BACKGROUND DATA: The incidence of chronic pain is higher among immigrants in Europe than among the native European population. Therapeutic interventions in this population are far less effective than in patients for whom these programmes were originally developed.

OBJECTIVES: In a randomised trial, we investigated whether a cognitive behavioural treatment (CBT) programme supplemented with culturally sensitive aspects (CsCBT) improves pain intensity, pain disability and quality of life among immigrant patients, compared with a treatment of culturally sensitive exercise therapy (CsET) alone. Furthermore, we investigated whether healthcare costs would decrease.

METHODS: First-generation Turkish immigrants residing in Switzerland (20–65 years of age) who suffered from chronic pain were enrolled in the trial. Patients were randomised to attend either CsCBT or CsET. The CsCBT intervention was based upon a manualised cognitive-behavioural group treatment programme for chronic pain patients and adapted to the needs of a Turkish immigrant population. The CsET intervention was based on principles of exercise therapy for treatment of nonspecific low back pain.

RESULTS: A total of 116 outpatients were recruited between October 2004 and November 2006. The intervention was completed by 89 patients (77%). A total of 78 subjects (67%) completed follow-up, 12 months after the completion of the intervention programme. The intervention showed no effects in reducing pain, pain disability or quality of life. The analysis of healthcare utilisation yielded no intervention effect.

CONCLUSIONS: Cognitive behavioural intervention is feasible with immigrants with chronic disabling pain, but the evidence-based CBT programme, as well as exercise therapy supplemented with culturally sensitive aspects, showed no improvement.

Key words: *randomised controlled trial; chronic pain; immigrants; culturally sensitive cognitive behavioural therapy; culturally sensitive exercise therapy*

Introduction

Pain disorders are frequently encountered among immigrants. In England, chronic pain is more prevalent among African-Caribbean and South Asians than the English population [1–3].

Results of most investigations on experimental pain show significant ethnic differences in response to experimental pain across multiple stimulus modalities [4–8]. Most clinical pain studies agree that. in contrast to the native population, ethnic minority groups report more severe pain, more depressive symptoms, increased avoidance of activity, more fearful thinking, more physical symptoms, greater physical and psychosocial disability, wider-spread areas of pain, as well as greater disease activity [9–28]. Some authors point out that patient ratings differ from physician ratings. Physicians ascertain no specific difference in global physical assessment in immigrant patients [27, 28], and even less physical damage in these groups [19]. However, affiliation to a racial or an ethnic group may not necessarily be responsible for differences in the perception and experience of pain, as these variations may sometimes be better explained by socioeconomic status and level of education [29–32].

Additionally, racial and ethnic differences exist not only in the experience of pain but also in pain treatment. A majority of studies find that patients with a different ethnic background do not have the same access to pain therapy and are not given the same treatment. This inequality in pain treatment between ethnic groups has been observed across all types of pain and in many settings [15, 33–38]. As an example, white patients with pain were more likely to receive an opioid than black, Hispanic, or Asian patients; these differences did not diminish between 1993 and 2005. White workers claiming compensation were 40% more likely than African Americans to receive a diagnoses of a herniated disc and consequently twice as likely to undergo surgery.

Patients also differ in coping with pain. Compared with native Swedes, immigrants in Sweden rely more on passive coping strategies to manage pain [39]. Passive pain-coping strategies focus on treatment modalities that do not require a patient's active participation, such as increasing pain medication or massage therapy. First-generation Turkish

immigrants in Germany suffering from chronic headache overuse acute headache medication [40]. A comparison of US African-Americans and Caucasians shows the former to be less physically active and report lower perceived control over pain. African-Americans also employ more external pain-coping strategies such as the belief someone else could offer a successful therapy, be it a competent doctor or God himself [41–43]. Similar results have been found in a pain-free sample of young adults [44]. This suggests that ethnic differences in pain coping within clinical samples do not result from prolonged exposure to chronic pain, but might be evident even in the absence of chronic pain.

The importance of a culturally sensitive approach to the treatment of immigrants has been much discussed in the literature [15, 45–47]. Nevertheless, we were unable to find any publication about specific cognitive behavioural programmes for the treatment of culturally diverse patients who suffer from chronic pain. Either such programmes have not yet been developed or, if in existence, have not yet been evaluated. According to our own relatively extensive clinical experience, we assumed that conventional evidence-based cognitive behavioural therapy (CBT) programmes of pain management would not be effective for immigrants with chronic pain. Therefore, we modified a standard treatment programme for chronic pain patients to accommodate the specific needs of an immigrant sample with a culturally sensitive approach. The current paper describes the intervention and reports on its efficacy within a randomised controlled trial.

Methods

The trial was carried out at the Department of Psychosomatic Medicine University of Basel Hospital and was planned as a randomised intervention trial with an active treatment group and a control group who received an equal amount of therapist attention: exercise therapy plus playful activities. An active control group was chosen because there is some evidence that both therapies, a CBT approach and exercise therapy are more effective than a waiting list control group [48–53].

The anonymity of the patients' data was retained and informed consent was received according to the requirements of the institutional ethical review board. The trial protocol was approved by the Ethical Committee of Canton of Basel on 9 September 2004 (207/04).

Study Population

First-generation Turkish immigrants in Switzerland suffering from chronic pain, 20–65 years of age, were enrolled in the trial. Patients were referred either from general practitioners, from the outpatient unit of the Hospital or from other clinics in Basel or the region. We defined chronic pain in accordance with the German version of International classification of diseases (ICD) 10: The predominant complaint was severe and distressing pain of more than 6 months duration, which cannot be explained fully by a physiological process or a physical disorder. Psychological factors are assumed to contribute significantly to intensity, exacerbation or persistence of pain (http://www.icd-code.de/icd/code/F45.41.html).

Exclusion criteria among patients were the following: (1.) evidence of physical disability preventing participation in physiotherapeutic exercises, (2.) a request for asylum was pending, (3.) documented behaviour indicating a lack of minimal motivation or inability to cooperate with therapists or other group participants, or (4.) specific conditions, i.e., organic brain syndromes, schizophrenia, affective psychosis, bipolar affective disorders, illegal substance abuse or addiction, dissociative disorders, or pronounced symptoms of post-traumatic stress disorder.

Both patient groups received the same trial information sheet and completed informed consent.

Table 1: Demographic characteristics of group participants.

Characteristic	CsCBT group (n = 44)	CsET group (n = 34)
Mean age ± SD, y	44.0 ± 7.4	43.8 ± 7.1
Sex, %		
Female	70.5	67.6
Male	29.5	32.4
Marital status, %		
Married	93.2	91.2
Unmarried (single, widowed, divorced)	6.8	8.8
Nationality, %		
Turkish	65.9	55.9
Kurdish	34.1	41.2
Others	0	2.9
Educational level		
no school	20.5	23.6
elementary	54.5	52.9
Intermediate	20.5	14.7
College	4.5	8.8
Occupation		
Unskilled	95.5	100
Skilled	4.5	–
Employment status, %		
Employed	9.1	5.9
Unemployed	90.9	94.1
Current source of income, %		
Salary	9.1	5.9
social welfare, unemployment compensation	25.0	32.3
health insurance	–	23.5
disability insurance, SUVA	31.8	14.8
income of spouse	27.3	23.5
no indication	6.8	–
Ill or unemployed spouse, %	56.8	44
Mean of years in Switzerland; range	19; 4–34	18; 6–34
Reason of immigration, %		
accompaniment of spouse or parents	65.9	52.9
economic reasons	18.2	20.6
political reasons	15.9	20.6
other	–	5.9

CsCBT = Culturally sensitive cognitive behavioural therapy; CsET = Culturally sensitive exercise therapy
NOTE: Some percentages do not total 100% due to missing data
* Multiple answers are possible

Interventions

Patients were randomly allocated to attend either culturally sensitive cognitive-behavioural treatment (CsCBT) or culturally sensitive exercise treatment (CsET). Both interventions comprised twenty-five 90-minute sessions within a six-month period and were adapted concerning structural and didactic aspects to a culturally sensitive context.

The CsCBT intervention was based upon a manualised cognitive-behavioural group treatment programme for chronic pain [54] and combined cognitive behavioural principles with culturally sensitive migration-specific elements. Cognitive behavioural approaches focus on the way individuals cope with their pain, instead of assuming that a biological reason for the pain can be identified and treated. Interventions include patient information about the origin of chronic pain, identification of aspects in life that are less affected by pain, and areas that are linked to positive experiences. As part of a behavioural component patients are advised to make bodily experiences by using stretching and strengthening exercises.

The CsET intervention was based on principles of exercise therapy for treatment of non-specific low back pain. Exercise therapy (ET) is defined as "a series of specific movements with the aim of training or developing the body by a routine practice or as physical training to promote good physical health" [55].

Structural adaptations for each of the two interventions included (a) the separation of male and female patients into different groups, (b) an increase in the number of sessions from 14 in the original programme, to 25 in ours,(c) sessions being conducted in Turkish with the aid of an interpreter. Didactic adaptations also took account of the educational level of our sample. The use of written materials was limited in order not to exclude illiterate patients. When written material was used, it contained graphical displays, e.g., for exercises or of the vicious cycle between emotion (a weeping eye), muscle tension (a bent arm) and pain (a painful face).

Groups were co-led by a licensed clinical psychologist and a physiotherapist, both German speaking. The clinical psychologist had extensive prior experience delivering CBT to immigrants with chronic pain. The CsET intervention was conducted by a German-speaking physiotherapist. Since most patients lacked sufficient comprehension of the German language, a Turkish interpreter was required in both interventions. The interpreters were certified by the Swiss organisation for Interpreters as medical professional interpreters, and most of them had already been cooperating with our department for more than four years. They were integrated in the therapist team and received continuous supervision by the first author.

Study outcomes

The primary endpoint with respect to efficacy of CsCBT was improvement in physical functioning and mental health from baseline to 12 months after the intervention, as measured by the Short Form 36 (SF-36) in the subscales Physical Functioning and Mental Health [56]. Additional analyses were performed on quality of life in the remaining subscales of the SF-36, depression was measured with the General Health Questionnaire (GHQ) [57], disability was measured with the Pain Disability Index (PDI) [58]. Healthcare costs incurred by the patient, within three months preceding vsafter the intervention, were analysed retrospectively by gathering information from insurance companies.

All subjects were first tested after enrolment in the trial (T1), then after completion of the intervention (T2), and finally after twelve months follow-up (T3). Both groups followed the same assessment protocol.

Semistructured interviews were all translated by trained interpreters. Standardised tests were filled in either by the patient him- or herself or, in the case of illiteracy, together with the interpreter.

List of measures

1. The revised semistructured Interview of Clinical Symptoms (SICS-R) describes pain history, symptoms, and cognitive and emotional aspects that influence pain.
2. Pain drawings allowed the identification of topographical distribution of pain to be quantitatively recorded.
3. A visual analogue scales (VAS) was used to quantify the intensity of subjective pain.
4. The Turkish translation of the Short Form 36 (SF-36) assessed quality of life in chronic patients for the following scales: physical functioning, physical role, bodily pain, general health, vitality, social functioning, emotional role and mental health.
5. The validated Turkish version of the General Health Questionnaire (GHQ; Kiliç [59]) is a screening instrument for psychopathological symptoms in general healthcare. The 28-item scale includes four dimensions, somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression.
6. The validated Turkish version of the Pain Disability Index (PDI) [60] assesses the extent of pain-related interference performing activities considered normal for a particular age group.
7. Healthcare utilisation costs for the period of three months before and after participation of the patient in the intervention were calculated by Swiss insurance companies.

Sample size and power calculation

Based upon previous experience with the intervention, we expected a treatment-related improvement with an average effect size (Cohen's d) of 0.6 on the SF-36 primary outcome scales of physical functioning and emotional health (based on published norms, http://www.sf-36.org/research/sf98norms.pdf), manifesting positive outcomes in these two primary outcome variables ($\alpha = 0.025$): With 45 patients per group, this yielded a power of above 80% in power analyses. We planned to have equal numbers of men and women and to randomise 60 patients in both treatment arms per year (15 men and 15 women in the CsCBT and in the CsET per year, respectively). To include a sufficient number of patients in each arm, we repeated the intervention in the same manner during the second year.

Randomisation

A computer-generated randomisation list was drawn up for each gender by a statistician of the Basel Institute of Clinical Epidemiology. Details of the series were not known to any of the investigators. Allocation concealment was guaranteed through sequentially numbered, opaque, sealed envelopes enclosing assignments. The envelopes were handed over to the research psychologist after intake interviews were completed. Patients had an equal probability of assignment to each groups. The randomisation took place after the initial assessments and was immediately communicated to patients.

All initial and follow-up interviews were conducted by a research psychologist not involved in the treatment. Blinded assessments were not feasible for follow-up meetings because patients inevitably relayed information about their treatment experiences to the research psychologist.

Statistical methods

Treatment effects, (means and standard deviations (SDs), were estimated at post-treatment and 12 months follow-up for the primary outcomes (two items of SF-36) and secondary outcomes, which included the other six subscales of the SF-36, the GHQ, the PDI, a visual analogue pain rating scale (VAS), and healthcare costs. Significance levels were $p < 0.05$ (two-tailed analyses). For the questionnaire data and pain rating, change scores (post-treatment or 12 month-follow-up minus pretreatment levels) were computed, and groups were compared employing general linear models, after covariate adjustment for baseline levels of each measure. Independent t-test analyses were used to examine possible differences in healthcare costs between groups. CSS Statistica was employed for all statistical analyses (StatSoft, Inc. STATISTICA (data analysis software system), version 6.0. www.statsoft.com).

Results

Flow of participants

Eligible participants were recruited from September 2004 to March 2007. Figure 1 is a flowchart of the trial. A total of 158 potentially eligible patients with chronic pain were referred, 146 patients agreed to take part in the trial. A total of 116 patients completed the pre-trial assessment and were found to be eligible, consented, and were randomised.

At the follow-up 12 months later, the drop-out rate for both groups was quite high: 29% with CsCBT and 37% with CsET. Only a small percentage refused therapy, 6% in the CsCBT group and 15% in the CsET group. Most patients gave plausible reasons not to continue to attend group therapy. Their reasons are listed in figure 1.

Protocol deviations

There was one protocol violation regarding the recruitment of men. We could not recruit as many male patients as we had planned. We chose to include more female participants to obtain a sufficient number of patients, but at the same time had to abstain from analysing data separately for men and women.

Demographic data

Baseline demographic characteristics are presented in table 1. Examination of demographic characteristics at baseline showed only one difference between groups: a larger percentage of participants in CsET reported that compensation from health insurance was their main source of income. Mean age was 43.9 years (range 29–61). Overall, 61% of patients were of Turkish and 38 % were of Kurdish origin; 54% of patients had formal education of five years or less; 22% of patients were illiterate. Almost all (98%) had worked as unskilled workers in the cleaning business or in construction. The majority (92%) of patients were unemployed at enrolment.

Baseline clinical characteristics of trial groups are presented in table 2. In the majority of patients pain was distributed among multiple regions of the body (fig. 2).

Table 2: Clinical characteristics of group members as collected in the Semistructured Interview.

Characteristic	CsCBT group (n = 44)	CsET group (n = 34)
Mean pain chronicity; range, y	4; 1/2–17	6; 1–30
Pattern of pain, %		
Permanent pain	88.6	82.4
Several times daily	9.1	14.7
Several times weekly	2.3	2.9
Negative modulation of pain*, %		
Weather	65.9	61.8
Stress	50.0	67.6
Physical strain	70.5	52.9
Pain trigger*, %		
Illness	9.1	2.9
Accident	25.0	35.3
Workload strain	25.0	35.3
Traumatic life events, death in the family	15.9	14.7
Stress and conflict in the family	11.4	11.8
Migration	2.3	8.8
Pregnancy, surgical operation	11.4	26.5
Violent experience	2.3	5.9
Indefinite triggers	29.5	20.6
Do patients recognise any connection between their chronic pain and psychosocial stress? %		
yes	52.3	61.8
none	47.7	38.2
Mood disorders, %		
Mild depressive episode	27.3	44.1
Moderate depressive episode	27.3	32.4
Severe depressive episode	4.6	–
None	22.6	14.7
Missing data	18.2	8.8
Anxiety disorders, %		
yes	27.3	11.7
none	72.7	88.3
Persistent somatoform pain disorder, %		
yes	79.5	88.2
none	20.5	11.8

CsCBT = Culturally sensitive cognitive behavioural therapy; CsET = Culturally sensitive exercise therapy

Analysis of treatment effects

Participants were tested after randomisation (baseline) and again after their participation in the intervention, and finally after 12 months follow-up. Of 116 randomly assigned participants, a total of 87 were included in the analysis of baseline and post-treatment effects, and 78 patients in the analysis of the difference between baseline and follow-up 12 months later. Intention-to-treat analyses were not performed owing to lack of significant effects (the three significant findings reported in table 3 can be attributed to chance as a result of the multiplicity of comparisons).

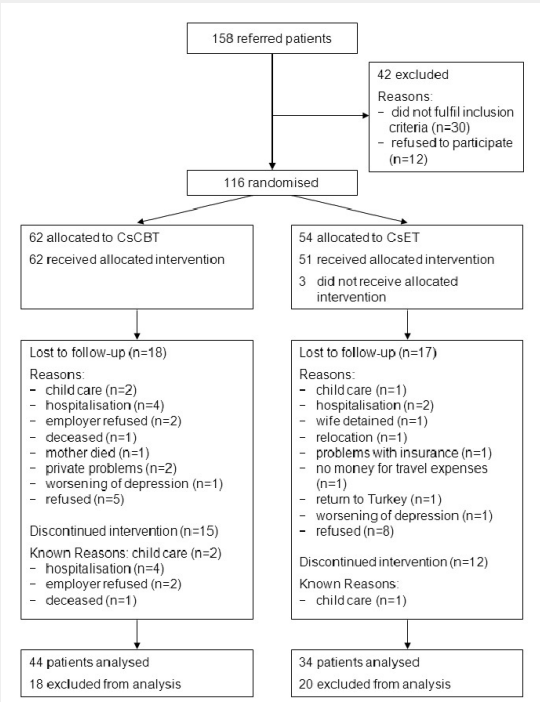

Figure 1

Flow chart of participants.

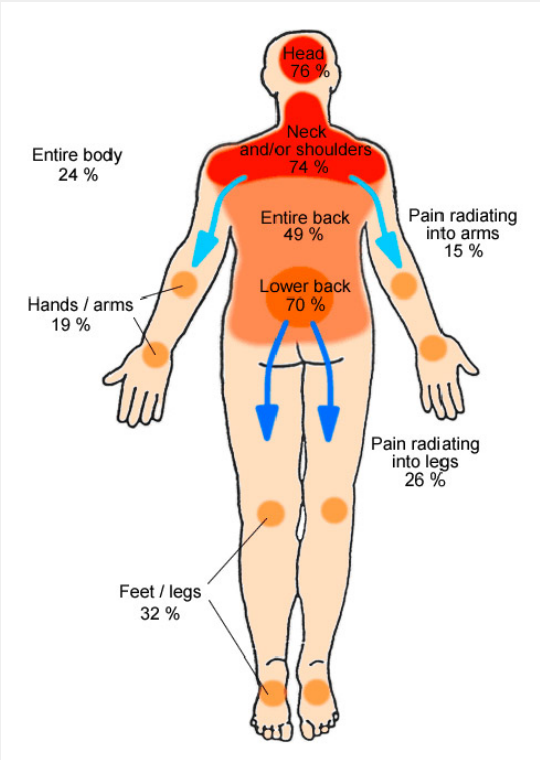

Figure 2

Graphical display of pain localisation, reported by the patients on a sketch as shown. Multiple responses were allowed (n = 114).

Primary and secondary outcome scores of SF-36, GHQ and PDI for men and women in both groups showed no improvement, neither at short term follow-up after three months, nor at long-term follow-up at 12 months (table 3). Interestingly, the SF-36 scores were extremely low, indicating low levels of quality of life and functioning (see table 3). The same was true for any single score of the SF-36.

The same holds for GHQ scores which indicated low quality of life and showed no improvement in either group. The pain disability index demonstrated a high pre-intervention level of disability due to chronic pain.

Pain intensity

The analysis of pain intensity (VAS) presented in table 4 showed no significant change.

Healthcare utilisation

Health insurance companies provided the data on healthcare procedures and costs for 105 patients. Again, there was no significant difference before and after treatment, or between groups.

Patients also evaluated the therapy in the semistructured interviews in a less formal way: 80 percent of participants claimed to be satisfied with the intervention. Patients especially liked that the therapy was offered in their mother tongue.

Discussion

A brief synopsis of our key findings

Sixty-nine percent of our patients successfully completed the intervention, which indicates that long-term behavioural interventions on an out-patient basis is generally feasible in this patient group. Also, anecdotal feedback from patients indicated a broad acceptance of the intervention. We have no indication of any significant difference between participants who were included at the beginning of the intervention and later dropped out, and those who generated data at the end of the intervention. These findings are important, in themselves, in suggesting that first-generation Turkish immigrants in Switzerland suffering from chronic pain are amenable to long-term interventions of a behavioural nature that attempt to be culturally sensitive. On the other hand, the general lack of treatment effects was disappointing: There was no significant or clinically relevant improvement at the 12month follow-up in any of the major outcome measures, including the SF-36, GHQ, PDI or in VAS pain. Modest beneficial effects of two SF-36 scales, assessed directly after treatment, were no longer found 12 months later. Healthcare costs remained unchanged from before to after therapy.

Consideration of possible mechanisms and explanations

Although the intervention showed no improvement in standardised assessment scales, 80% of participating patients in both groups reported satisfaction with the intervention. In fact, many expressed regret that the intervention could not continue beyond six months. This might point to a mismatch between study assessments of treatment effic-

Table 3: Tests of change ccores during treatment at post-treatment and follow-up.

Primary outcomes	Group	Baseline scores			Change: baseline to post-treatment			Change: baseline to 12-month follow-up		
		Mean	Lower 95% CI	Upper 95% CI	Mean Change	Lower 95% CI	Upper 95% CI	Mean Change	Lower 95% CI	Upper 95% CI
Physical functioning (SF-36)**	CsCBT	32.22	27.57	36.87	–1.74	–7.44	3.96	–3.30	–11.45	4.85
	CsET	32.92	28.22	37.62	–2.75	–9.17	3.67	–4.79	–13.95	4.37
Mental health (SF-36)**	CsCBT	42.53	39.23	45.83	2.36	–1.94	6.66	1.39	–5.52	8.30
	CsET	44.63	39.99	49.27	2.46	–3.92	8.84	4.59	-2.85	12.03
Secondary outcomes										
Physical role (SF-36)**	CsCBT	4.17	0.95	7.39	5.85*	–1.52	13.22	–1.14	–9.75	7.47
	CsET	1.56	–0.12	3.24	–4.38*	–9.85	1.09	–2.21	–8.68	4.26
Bodily pain (SF-36)**	CsCBT	47.17	39.08	55.26	.87	–3.79	5.53	–3.05	–9.22	3.12
	CsET	52.41	42.36	62.46	–5.50	–10.46	-0.54	–3.09	–9.16	2.98
General health (SF-36)**	CsCBT	54.06	47.90	60.22	1.21	–3.60	6.02	–.80	–6.07	4.47
	CsET	52.55	45.48	59.62	–1.79	–6.83	3.25	2.42	–4.35	9.19
Vitality (SF-36)**	CsCBT	37.50	33.03	41.97	.04	–5.11	5.19	.23	–7.23	7.69
	CsET	43.13	38.25	48.01	1.75	–5.36	8.86	5.88	–2.63	14.39
Social functioning (SF-36)**	CsCBT	45.49	40.93	50.05	2.39	–4.82	9.60	–3.69	–12.25	4.87
	CsET	50.39062	44.48	56.30	3.75	–4.47	11.97	6.25	–5.81	18.31
Role-emotional (SF-36)**	CsCBT	4.63	0.04	9.22	2.84	–6.02	11.70	–7.58	–19.47	4.31
	CsET	12.50	3.93	21.07	.83	–9.40	11.06	5.05	–5.70	15.80
Physical symptoms (GHQ)***	CsCBT	13.61	12.56	14.66	.23	–1.27	1.73	–1.23	–2.92	0.46
	CsET	13.47	12.16	14.78	.95	–0.79	2.69	–1.29	–3.18	0.60
Anxiety (GHQ)***	CsCBT	13.42	12.30	14.54	.87	–0.57	2.31	–.84	–2.45	0.77
	CsET	12.41	11.03	13.79	.54	–1.26	2.34	–.03	–2.02	1.96
Impairment of social functioning (GHQ)***	CsCBT	13.89	12.85	14.93	1.49	0.06	2.92	–.37	–1.93	1.19
	CsET	13.19	11.97	14.41	1.10	–0.48	2.68	–1.18	–3.11	0.75
Depression (GHQ)***	CsCBT	9.06	7.94	10.18	–.91	–2.39	0.57	–.95	–2.78	0.88
	CsET	8.78	7.25	10.31	.72	–1.08	2.52	–1.12	–3.15	0.91
Pain Disability Index (PDI)****	CsCBT	38.96	35.40	42.52	1.35	–3.22	5.92	.60	–4.54	5.74
	CsET	40.72	36.55	44.89	4.98	0.81	9.15	.76	–4.85	6.37

CI = confidence interval; CsCBT = Culturally sensitive cognitive behavioural therapy; CsET = Culturally sensitive exercise therapy

** The percentage scores range from 0% (lowest or worst possible level of functioning) to 100% (highest or best possible level of functioning).

*** Simple Likert Scoring 0-1-2-3 measuring symptoms from 'not all' to 'much more than usual'

**** Scoring 0-1-2-3-4-5-6-7: 0 – no disability, 7 – worst disability

Table 4: Means and standard seviations (SD) of pain intensity on a visual analogue scale (0–10).

Secondary outcomes	Group	Pretreatment		Post-treatment		12-Month follow-up	
		Mean	SD	Mean	SD	Mean	SD
Pain intensity (visual analogue scale)	CsCBT	7.38	1.99	7.62	1.60	7.43	1.91
	CsET	7.47	2.12	7.42	1.89	7.50	1.96
	Pooled	7.42	2.03	7.53	1.71	7.46	1.92

CsCBT = Culturally sensitive cognitive behavioural therapy; CsET = Culturally sensitive exercise therapy

acy, on the one hand, and patient perception of their own personal benefit, on the other. Given the fact that similar CBT-based interventions have been shown to work well in other populations [45, 47–49, 61] (with one exception [62]), one might consider whether the apparent failure of the intervention had to do with the particular needs of the population under study. We certainly attempted to pay attention to the specific cultural factors of the patient population, mostly from rural Turkey, and adjusted the intervention accordingly. Still, one must consider if more intensive therapy might have yielded better results, although the limited evidence available regarding in-patient treatment of migrant patients suffering from chronic pain, even with a much higher intensity of treatment than ours, has not shown impressive results [63–66].

On the other hand, one might question whether the assessment strategy was conceived in a sufficiently culturally sensitive manner in respect to several dimensions considered below.

Socioeconomic factors

The population under study certainly was unique. In contrast to other patient groups previously described, Turkish-speaking patients in our sample showed a strikingly low quality of life as assessed with the SF-36 [67], and were characterised by very low levels of education and a severe lack of socioeconomic resources. They suffered from a combination of economic stress and many emotional burdens in terms of family stresses, e.g., compromised family members as illustrated in the high percentage of chronically ill spouses (see table 1). Future prospect of work for our patients remained grim: Before acquiring their pain syndrome, they had typically been performing heavy physical work, were unskilled and had poor language competence. During disability and the period of unemployment, they also almost certainly became physically deconditioned. Frequently they sought to improve their financial situation by applying for disability benefits. However, during the period of our trial, the Swiss Court issued a decision that rescinded the previous eligibility of chronic pain as a ground for early retirement disability. If we assume that self-reported evaluations of pain are also expressions of a more general statement of "not being well", patients may have been reluctant to acknowledge in test results that they were getting better, out of fear of further reducing their chances of disability benefits.

Assessment instruments

We chose questionnaires that had validated in Turkish populations to increase the likelihood of obtaining reliable data. However, these instruments had been validated among samples significantly different from the population that we studied: respondents were much better educated and had a substantially higher socioeconomic status [54]. Assessment instruments for the kind of participants in this study do not yet exist, and it seems very plausible that they might not be appropriate, reliable or valid for this population. Thus it is possible that the global feedback of satisfaction with the programme provided the only reasonably accurate indication of patient perception. In any case, this study highlights the need for development of measurement instruments that can demonstrate properties of validity and reliability for such poorly educated immigrant populations – populations very much a reality in Western European countries.

As one example of disparities regarding our patient sample and others, in terms of levels of health-related quality of life, participants in our study differed from every other comparison group with which we are familiar: All scores on emotional, social and physical role functioning were extremely low [67]. It remains unclear whether the SF-36 is a valid instrument for an immigrant patient group in which one-fifth is illiterate, or whether the SF-36 accurately describes these patients' state of well-being. Of course, it is possible that the level of despair, despondency and resignation, often enough articulated by patients, were, indeed, reflected by quality of life scores, and that the level of intervention was insufficient to address the enormous adversities of these patients. In any case, until properly validated assessment instruments are developed for such populations, it may be impossible to determine efficacy of interventions or to explore relationships among salient variables in such groups.

In conclusion, our investigation suggests a very incipient state of knowledge in research on immigrants with low educational background who suffer from long-term pain. As a feasibility study, the study was highly successful at motivating participants to attend, and they appeared genuinely satisfied with a six-month programme of culturally sensitive cognitive-behavioural intervention. Nevertheless, our findings cast doubt over aspects of validity and reliability of outcome measures in this population. Our results may also call into question the adequacy of psychotherapeutic intervention as the sole strategy to help immigrants with chronic pain. Since the life challenges of this population are often so overwhelming, a far broader approach may be necessary that includes far greater efforts to integrate such individuals into their host society and workforce. Perhaps only then may CBT or alternative interventions begin to show positive results. Finally, despite our lack of positive findings, this intervention trial will hopefully stimulate further efforts to address a problem that saps both the human spirit and societal resources.

Table 5: Means and standard deviations of healthcare utilisation (estimated yearly costs in Swiss Francs).

Secondary outcome	Group*	Pretreatment		Post-treatment		p
		Mean	SD	Mean	SD	
Healthcare costs**	CsCBT	8,112	17,412	8,592	19,040	
	CsET	2,156	2,604	2,996	6,720	
	Pooled	5,444	13,344	6,088	15,048	0.704

CsCBT = Culturally sensitive cognitive behavioural therapy; CsET = Culturally sensitive exercise therapy

* Estimated yearly healthcare costs based on 3 months before intervention and 3 months after intervention.

**Costs were calculated according to Tarmed (health cost scale of Swiss Medical Association)

Implications of this research: Given the fact that we observed no changes at all, even no pooled effects, the lack of findings cannot be attributed to our employment of an active control intervention procedure. Additionally, given the absence of even tendencies toward effects of treatment, it is hard to argue that an increase in the number of participants (and hence the power of the analysis) might have been beneficial for detection of reliable treatment effects. One possibility is that our choice of assessment instruments did not target the underlying problem of these patients? Perhaps more fundamentally, one might wish to question, in the first place, whether such an immigrant population with chronic pain suffers 'pain' from the cultural understanding defined by a Western taxonomy, or whether the term "pain" refers more to a fundamental sense of 'ill-being' that simply cannot be addressed by a pain-oriented treatment program.

Acknowledgement: The study was financed by Swiss National Funding Programme "Chronic Musculoskeletal Pain".
Funding/ potential competing interests: The trial was financed by Swiss National Funding Programme "Chronic Musculoskeletal Pain".

Correspondence: *Marina Sleptsova, lic.phil., Division of Psychosomatic Medicine, University Hospital Basel, Hebelstrasse 2, CH-4031 Basel, Switzerland,*
Msleptsova[at]uhbs.ch

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Figures (large format)

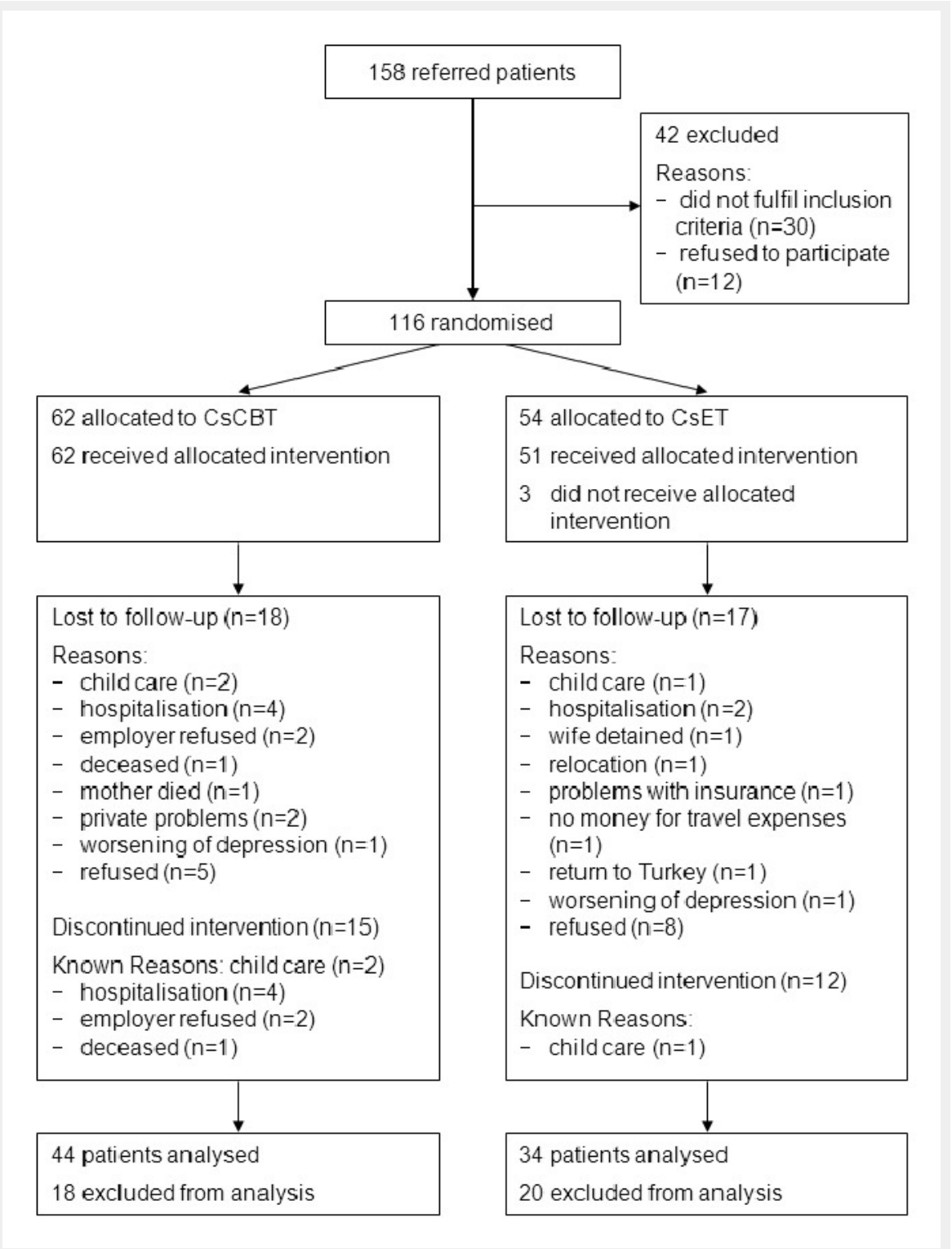

Figure 1

Flow chart of participants.

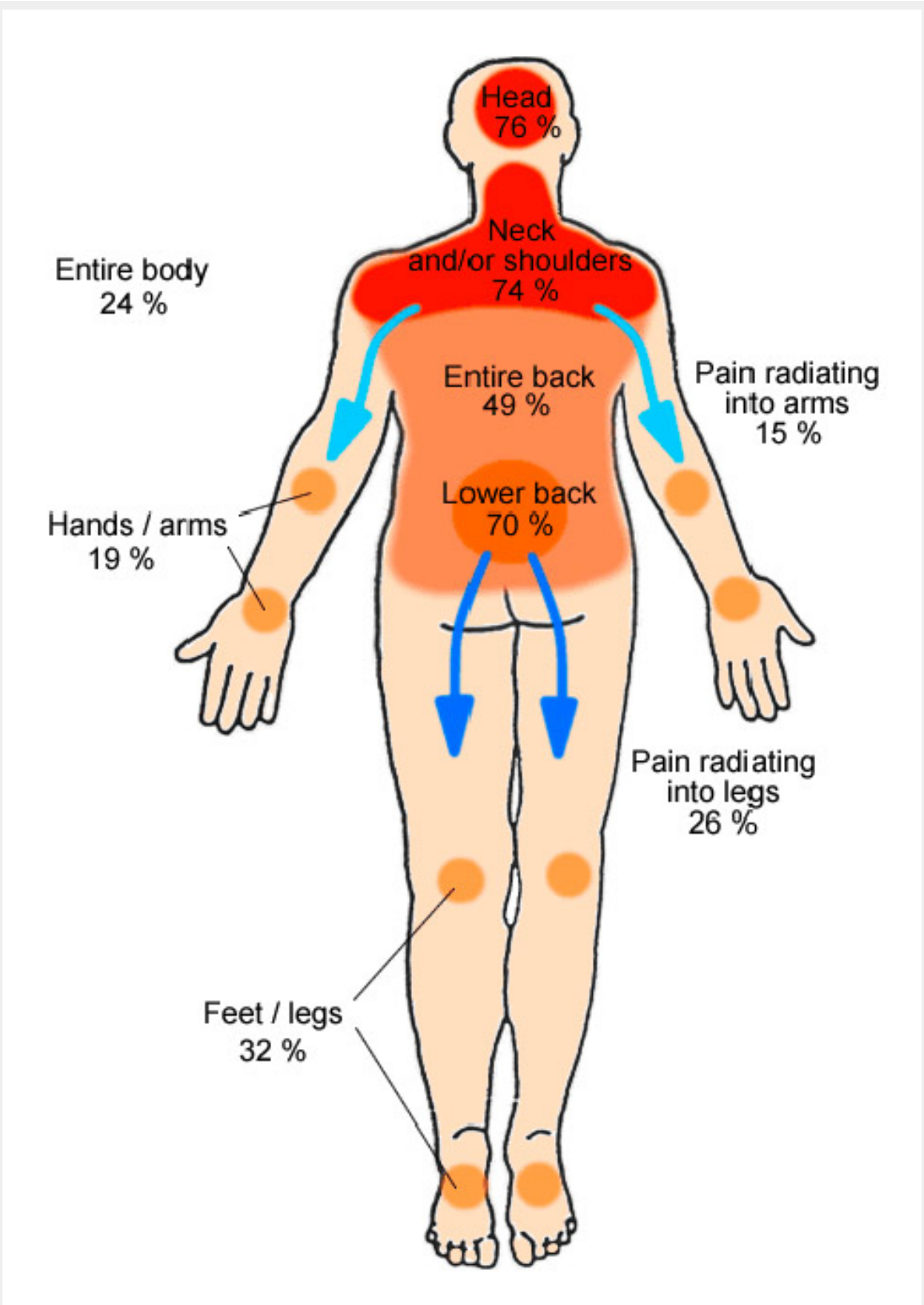

Figure 2

Graphical display of pain localisation, reported by the patients on a sketch as shown. Multiple responses were allowed (n = 114).