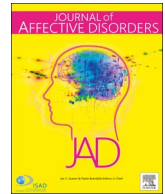




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## Review article

# Symptom manifestation and treatment effectiveness, -obstacles and -facilitators in Turkish and Moroccan groups with depression in European countries: A systematic review



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## ABSTRACT

**Background:** This study examined the state of the art relevant for clinical practice on symptom manifestation of depression or depression-related idioms of distress, the treatment effectiveness and obstacles and facilitators for therapeutic success in Turkish and Moroccan immigrant populations with depression in Europe.

**Methods:** We conducted a systematic search in PsycINFO, MEDLINE, Science Direct, Web of Knowledge, and Cochrane databases (1970– 31 July 2017). Peer-reviewed studies, with adult populations, and an instrument assessing depressive symptoms met inclusion criteria and were evaluated following quality guidelines.

**Results:** We included 13 studies on symptom manifestation, 6 on treatment effectiveness, and 17 on obstacles and facilitators, published between 2000 and 2017, from Germany, the Netherlands, Austria and Sweden ( $n$  Turkish individuals = 11,533;  $n$  Moroccan individuals = 5278;  $n$  native individuals = 303,212). Both ethnic groups more often reported combined mood and somatic symptoms (and anxiety in the case of Turkish groups) than natives, and had higher levels of symptoms. There was no report on effectiveness of pharmacotherapy and there was weak evidence of the effectiveness of examined psychological treatments for depression in Turkish groups. No treatment has been examined in Moroccan groups. Salient obstacles to therapeutic success were socioeconomic problems, higher level of psychological symptoms at baseline, and negative attitudes towards psychotherapy. Possible facilitators were interventions attuned to social, cultural and individual needs. Results were most representative of first generation, low SES Turkish immigrant patients, and Moroccan-Dutch members of the general populations.

**Conclusion:** Turkish and Moroccan immigrants with depression presented a comorbid symptom profile with more intertwined depressive and somatic complaints. There were indications that the available therapies are insufficient for Turkish groups, but the current evidence is scarce and heterogeneous, and RCTs suffer from methodological limitations.

## 1. Introduction

The World Health Organization (2017) considers addressing depression as a major public health priority. In Europe, dysthymia and major depressive disorder are among the disorders with the highest impact on disease burden (Alonso et al., 2004). Non-EU immigrant populations in Europe are considered vulnerable populations for developing depression (Missinne and Bracke, 2012; Tarricone et al., 2012). In addition, immigrant populations in Western contexts, such as the United States and Europe, are at risk of receiving less care as well as care that is not well adapted to their needs (Alegria et al., 2008; Derr,

2016; Lindert et al., 2008).

The Turkish and Moroccan immigrant communities are currently among the largest immigrant populations in Europe, making up 7.5% and 5.8% respectively of the total foreign-born EU population (Eurostat, 2017). There are reports that the prevalence of depression in specific subgroups among Moroccan-Dutch, such as older adults (van der Wurff et al., 2004), and in Moroccan immigrants in Belgium is significantly higher than in the native-born population (Levecque et al., 2009). According to our estimations of the one-month pooled prevalence of depressive disorders, Turkish-Dutch immigrants showed a much higher prevalence than Dutch natives (16.6% vs. 4.5%), while the

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prevalence among Moroccan-Dutch immigrants (6.2%) was closer to that of the native-born. Turkish-German immigrants showed a higher prevalence than their Turkish-Dutch counterparts (21.4%; Sempértegui et al., *In preparation*).

Studies have found some evidence linking factors such as neuroticism (Schrier et al., 2013), low socioeconomic status (SES; Bengi-Arslan et al., 2002; Beutel et al., 2016; Erim et al., 2011; Morawa and Erim, 2014a, 2014b), and female sex/gender (e.g., Beutel et al., 2016; de Wit et al., 2008; Ikram et al., 2015; Levecque et al., 2009) to higher levels of depression among Turkish immigrants. Among older Moroccan immigrants, factors such as single marital status and same-ethnic social contact were related to more depressive symptoms (van der Wurff et al., 2004). Furthermore, according to our review of the literature (Sempértegui et al., *In preparation*), having a Moroccan or Turkish ethnicity was a salient correlate of depression (e.g., Beutel et al., 2016; de Wit et al., 2008; Sariaslan et al., 2014; Selten et al., 2012; van der Wurff et al., 2004).

Consolidating available knowledge has been considered crucial towards appropriate evidence-based treatments and cultural adaptation models that intend to improve the access, utilization, quality and cost-effectiveness of mental health care for immigrant populations such as the Turkish and Moroccan (Bernal et al., 2009). Accordingly, the purpose of this article is to synthesize and to critically examine the available knowledge on symptomatic manifestations of depression or depression-related idioms of distress in Turkish and Moroccan immigrant populations in European countries. We also aim to evaluate the documented effectiveness of treatments for depression offered to these populations and the factors enabling or discouraging these treatments. Doing so, we take an intersectional perspective that examines the dynamic interplay between aspects of diversity (e.g., sex/gender, race/ethnicity, age, socioeconomic status) involved in mental well-being and mental health care for these immigrant groups. From these findings, we also distil evidence-informed clinical strategies that might contribute to a better tailoring of the mental health care for Turkish and Moroccan immigrants with depression.

### 1.1. Mental health care for immigrant populations

Providing care to immigrant populations, such as the Turkish and Moroccan groups with depression, is not without challenges. The mechanisms of depression and the ways in which depressive symptoms are conceptualized, explained, experienced, expressed and resolved are influenced (among others) by own ethnocultural aspects (Balkir Neftci and Barnow, 2016; Kirmayer, 2012; Office of the Surgeon General, Center for Mental Health Services, and National Institute of Mental Health, 2001), and may vary between immigrant and native populations of receiving countries as well as between immigrant populations and the general population residing in the countries of origin (Deisenhammer et al., 2012). Furthermore, ethnocultural variables in interaction with other diversity aspects, or psychological, biological and social factors, might also influence the symptomatic manifestation of illness, the preferred and optimal therapeutic approach, and the treatment outcomes (Neblett et al., 2016; Office of the Surgeon General et al., 2001; Shaked et al., 2016).

Additionally, practitioners' clinical judgment regarding appropriate diagnosis and treatment strategies are also determined by their ethnocultural background (Balkir Neftci and Barnow, 2016; Kirmayer, 2012). Clinical judgment may also be undermined by stereotyped thinking, uncertainty about current clinical guidelines for working with other ethnic populations, or problematic communication due to language barriers or lack of experience working with interpreters (Kirmayer et al., 2011; Lindert et al., 2008; Sandhu et al., 2013; Schraufnagel et al., 2006; Tiemeier et al., 2002; Yeo, 2004). Furthermore, the therapeutic interaction is shaped by the patients' and clinicians' social and power position, which are related to the social and diversity aspects (e.g., age, sex/gender, income, education, religion) that form their

individual and social identity (Kirmayer, 2012). Also other (often adverse) social factors, such as immigrant generation, perceived discrimination in the receiving country, perceived social position, and acculturation are especially relevant for immigrant populations in clinical practice (Bhugra et al., 2014). For instance, studies have found that a Turkish or Moroccan background (e.g., Sariaslan et al., 2014; Selten et al., 2012) and perceiving ethnic discrimination (e.g., Ikram et al., 2016; Ikram et al., 2015; van Dijk, Agyemang, de Wit, and Hoesper, 2011) were predictors of depressive symptomatology (Sempértegui et al., *In preparation*). Also, according to our review of the literature (Sempértegui et al., *In preparation*), high levels of cultural maintenance were related to, or predicted higher levels of depressive symptoms in Turkish groups (e.g., Morawa and Erim, 2014a; Nap et al., 2015), whereas acculturation was not consistently related to depressive symptomatology among Moroccan populations (e.g., Nap et al., 2015; van der Wurff et al., 2004).

### 1.2. Aims of the review

We know from other studies that the provision of treatment for immigrant populations in general, and also immigrant populations with depressive symptoms, is considered challenging (e.g., Sandhu et al., 2013), and that there are inequities between the mental health care that immigrant populations receive compared to natives (e.g., Derr, 2016). However, we do not know if this also holds for Turkish and Moroccan immigrant populations with depression in Europe. We also do not know what are symptom manifestations of depression in these groups or what are factors associated with their therapeutic success. To contribute to the clinicians' understanding of the characteristics and needs regarding depression and depression treatment of Turkish and Moroccan immigrant groups in Europe, we aim at answering three key questions:

- a) What are symptomatic manifestations of depressive disorders or depression-related idioms of distress of Turkish and Moroccan immigrant populations?
- b) What is the effectiveness of treatments for depression in these immigrant populations?
- c) What are the documented obstacles and facilitators for the therapeutic success of treatment for depression for these populations?

We expect that our findings will provide clinicians with evidence-based insights that will contribute to a better attunement of their clinical practice (assessment and treatment) to the needs of their Turkish and Moroccan immigrant patients with depression, adding to the efforts to achieve equity in mental health care for depression between immigrant and native populations.

In the current review, we refer to first- and second-generation immigrants as “immigrant populations” and to all citizens born in the country of residence, from both parents also born in the country of residence (including third and fourth generation immigrant ethnic minorities) as “natives”. The reason that we do not consider the third and fourth generation ethnic minorities as immigrant populations is because this distinction was not made in any of the included studies, due to the fact that country of birth (of the person and his/her parents) was the most commonly used identifier of migration status. Also, in this review, findings concerning obstacles and facilitators were limited to those reported in studies on depression. The terms “obstacles” and “facilitators” refer to individual or contextual factors that were reported as barriers to access to treatment or obstacles for therapeutic success or enablers thereof. Such factors were either directly investigated by the reviewed studies, distilled from studied obstacles or facilitators, or discussed by the authors (as potentially explanatory or influential factors) in relation to the primary findings.

## 2. Method

### 2.1. Search strategy

We conducted a systematic review to address the formulated questions. This strategy was chosen above a meta-analysis due to the expected heterogeneity in topics and study methods. The PRISMA guidelines for reporting systematic reviews were followed (Liberati et al., 2009). We conducted a literature search in August 2013, with periodical updates (the last being in July 2017) using the databases PubMed, PsychInfo, Web of Knowledge, Science Direct and Cochrane. The keywords to identify studies included TURKISH or MOROCCAN (e.g., Turk\*, Morocc\*), EUROPE (e.g., Europ\*, United Kingdom, UK), IMMIGRANT (e.g., immigrant, migration), DEPRESSION (e.g., depress\*, depressive disorder, psychosomatic) and TREATMENT-related keywords (e.g., treatment, therapy, illness representations). Search terms concerning somatic symptoms were included due to some studies documenting a high association between depression and somatic complaints in the target populations (e.g., Erim et al., 2012). See Appendix A for the detailed search strategy. We limited the search to articles published between 1970 and 2017 and we did not specify a search language. Authors of possibly relevant non-English-written manuscripts (English abstract) were contacted for an English version. The article was considered for further revision if an English version was available. An exception was made for papers in German, given that at least two authors were proficient in these languages. Dutch was not an exception, as the relevant papers from Dutch scholars were published in English.

### 2.2. Inclusion and exclusion criteria

The inclusion criteria were:

- The studies included Moroccan and Turkish immigrant samples in (one of) the 14 European countries with the largest populations of interest (United Kingdom, the Netherlands, Belgium, France, Spain, Portugal, Germany, Austria, Switzerland, Italy, Finland, Denmark, Norway and Sweden; Eurostat, 2011).
- The study sample included exclusively Turkish or Moroccan immigrants or included Turkish or Moroccan individuals in a larger sample of other (non-western) immigrants warranted that (some of) the results of the target groups were discussed separately.
- The study sample was formed completely or partially by participants older than 18 (e.g., the parents of children and samples aged 15–24).
- The study included information on depressive disorders and symptoms, or relevant to depression treatment. We operationalized this criterion by only including papers that: 1) included at least one instrument or measure (subscale) of depression, and/or 2) made clear that all or at least the majority (> 50%) of the sample received treatment for depression or displayed depressive symptoms or features of depression according the used measures or pertinent DSM or ICD clinical diagnoses (e.g., Major Depression disorder/ Depressive disorder, Dysthymic disorder/ Persistent Depressive disorder), which were also considered measures of depression.

We excluded papers that were duplicated, reviews of literature, narrative or conceptual, based on single cases only, examined mental distress or well-being in general, included measures that did not differentiate depression from other disorders (e.g., the Kessler Psychological Distress scale, K10), or discussed depression exclusively in the context of a medical disorder (e.g., diabetes, HIV, cancer), and/or post-partum depression. The latter criterion was established to limit the extension and content of the review, and not because it lacks value for clinical practice. Papers on bipolar disorder, psychotic symptoms, and suicidal behavior were excluded for the same reason.

### 2.3. Procedure of study selection and data extraction

The first author performed the search. All papers found ( $N = 338$ ) were downloaded to the reference management software Endnote. All clearly irrelevant articles (e.g., duplicate papers, index summaries, papers addressing other disorders than mood disorders) were excluded. Next, the second and third author independently read the abstracts of all remaining articles and evaluated them to determine eligibility. In case the abstract was not informative enough, the content of the full document was reviewed. Discrepancies about eligibility were resolved by discussion and consensus. If consensus was not reached, the first author was included in the discussion to reach a consensus. Furthermore, this study is part of a larger review study on depressive symptoms of Turkish and Moroccan immigrants in Europe and includes (and reports henceforth) only the papers that examine the symptomatic manifestation and the (obstacles and facilitators for) treatment for depression. Papers on the prevalence and correlates of depressive disorders and depressive symptoms in the target immigrant groups (that do not contain information on the topics of the current review) were included and discussed in another paper (Sempértegui et al., In preparation).

For each included study, a data extraction form was filled in by the first author and later checked and complemented, if necessary, by one of the other authors. The following aspects were recorded: characteristics of the sample (type, size, groups, mean age, gender, ethnicity, generation, indicators of SES and acculturation), study design (design, sampling, analysis method, sample size calculation, effect size), topic and research question(s), inclusion and exclusion criteria, instruments, outcome variables, main findings, strengths, limitations, and possible clinical implications. The data extraction form was piloted on three studies with different designs by the first and second authors to ensure it could capture the relevant information. See Fig. 1 for the flowchart of the literature search and study selection.

### 2.4. Quality assessment

The methodological quality of the studies was assessed independently by the same two reviewers that performed the data extraction per paper. For the quantitative (intervention) studies, the Quality Assessment Tool for Quantitative Studies (Thomas et al., 2004) was used as the basis for the assessment tool. Other elements, especially relevant for the current topic (e.g., cross-cultural validity and reliability for both target groups), or integrated into recognized guidelines (i.e. the Risk of Bias assessment tool; Lundh and Gotzsche, 2008; Shamliyan et al., 2010) were also included. The qualitative studies were assessed using the guidelines proposed by Greenhalgh and Taylor (1997) and the checklist for editors of the British Medical Journal (BMJ, 2013). Quality indicators to clarify the criteria were extracted from the Quality in Qualitative Evaluation Framework (Spencer et al., 2003). The assessment criteria lead to quality ratings of 'weak' (WQ), 'moderate' (MQ), and 'strong' quality (SQ). Appendix B displays the list of quality criteria.

## 3. Results

After the selection process, we included 28 peer-reviewed published articles on depressive disorders and symptoms among Turkish and Moroccan populations in Europe. The articles that met inclusion criteria were published between 2000 and 2017. The design of the studies was mainly cross-sectional and quantitative. Four studies had a longitudinal design, three were RCTs and four examined the data qualitatively. All of the 28 studies included 11,533 Turkish individuals; median sample size (range) = 97.5 (10–4884), of which 62.3% were women. Seven studies included 5278 Moroccan individuals; median sample size (range) = 99 (22–3458), of which 62.1% were women. Fourteen studies also included 303,212 native individuals; median sample size (range) = 491.5 (41–131,690), of which 66.4% were women.

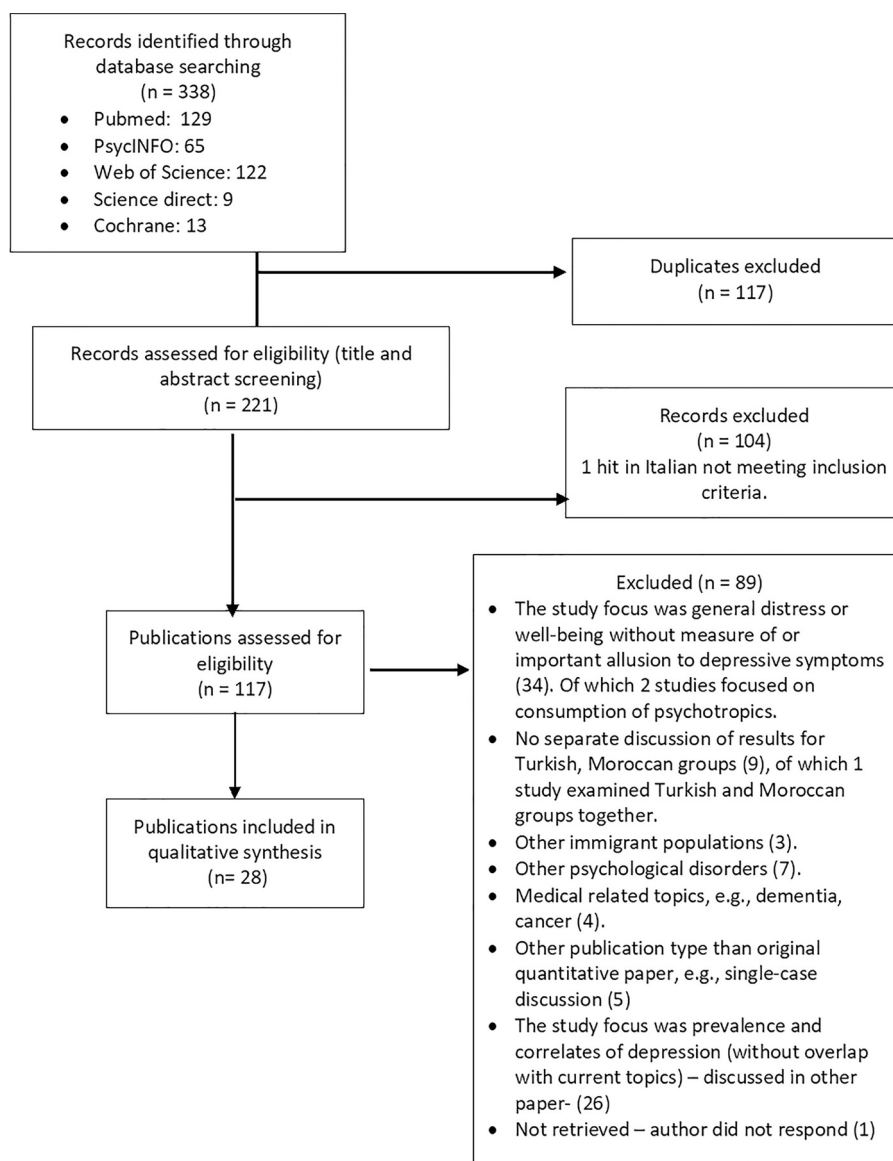


Fig. 1. Flowchart of the literature search and study selection.

Of the studies on Turkish individuals, the majority examined clinical samples (64.3% vs. 21.4% community samples), whereas the majority of the studies on Moroccan individuals examined community samples (57.1% vs. 28.6% clinical samples). A minority (3.6%) of the studies with Turkish individuals received a SQ rating, 46.4%, MQ, and 50%, WQ. All studies with Moroccan samples received a MQ rating. The main outcomes included information on symptomatic manifestations of depression, treatment effectiveness and obstacles and facilitators for therapeutic success (including accessibility, treatment continuity and outcomes). See [Appendix C](#) for the summary of the included studies and [Appendix D](#) for the detailed quality ratings.

### 3.1. The symptomatic manifestation of depression or related idioms of distress

[Table 1](#) shows the results on the symptomatic manifestation of depression or related idioms of distress. Twelve studies were analyzed on this topic, discussing findings from Dutch ( $n = 3$ ), Swedish ( $n = 1$ ), German ( $n = 7$ ), and Austrian ( $n = 1$ ) populations. Of these studies, three MQ studies contributed to the understanding of symptomatic manifestation through the study of psychometric aspects of instruments

to measure depressive disorders and symptoms (CIDI and CES-D; [Schrier et al., 2010](#); [Smits et al., 2005](#); [Spijker et al., 2004](#)). All papers examined Turkish samples, whereas three studies also included Moroccan samples. Little information was available on second-generation individuals, men, and highly educated immigrants.

Four studies assessed the symptoms of exclusively Turkish patients with quantitative and qualitative methods. The quantitative studies (one MQ, one WQ) found that symptoms such as ‘irritability’, ‘fatigue’ and ‘work difficulty’ were more often endorsed, especially by women and first-generation patients ([Morawa and Erim, 2014a](#)). ‘Sadness’ was also highly endorsed by patients with psychosomatic complaints, whereas ‘sleeping problems’ were common among primary care patients ([Morawa and Erim, 2014a](#)). Correlational analyses showed that psychological distress, depressive and somatic symptoms correlated positively with each other and were thus all relevant for patients with moderate to severe depression ([Heredia Montesinos et al., 2012](#)).

The two MQ qualitative studies assessed depressive symptoms or related idioms of distress beyond Western symptoms, meaning those features not included in the DSM or the ICD classification systems, which are based on research and consensus regarding the symptomatic manifestation of depression in mainly Western contexts (e.g., North

**Table 1**  
Symptomatic manifestations of depression or depression-related idioms of distress.

Study reference	Sample, study country	Turkish immigrants	Study populations Other immigrant groups	Native Europeans
Baarnhielm, 2000	Female, first-generation, adult outpatients, Sweden	Somatic symptoms: (lateralized) pain, dizziness, fatigue, hypertension, forgetfulness, breathing difficulties and health symptoms. Sadness, disappointment, grief or fear. Higher suicidal ideation	Lower suicidal ideation <sup>a</sup>	Lower suicidal ideation
Beutel et al., 2016	General adult population, Germany			
Borra, 2011	Female, first-generation, adult outpatients, the Netherlands	Somatic symptoms: headache, premenstrual symptoms, feeling of tightness. Anxiety and depressive symptoms. Visual and auditory hallucinations. Suicide attempts. Experiences of loss and violence. Idioms of distress: sikinti and bunalım (feeling tightness, oppressed, or being squeezed); karamsar (black feeling); kuruntu (thought that keeps churning in the head); bozukluk (being devastated); korku (feeling of impending danger; korku (agitation and irritation); sinirli (anger attacks). Problems with cesaret (courage); gurur (pride); and kandine güven (self-confidence) were better understood than self-deprecation. Depressive and somatic symptoms factor, and a mixed factor of miscellaneous psychological distress symptoms. Fear of stigmatization was related to the depressive and psychological distress symptoms, not to the somatic symptoms. Similarities: Similar levels of depressive, anxiety and somatic symptoms <sup>b</sup> . Irritability, fatigue and work difficulty, especially for women and first-generation patients. Sadness (psychosomatic sample) and sleep problems (primary care).		
Heredia Montesinos et al., 2012	Female, first-generation, adult outpatients, Germany			
Mewes et al., 2010 Morawa and Erim, 2014a, 2014b	Adult general population, Germany Adult in-and outpatients with psychosomatic complaints, Germany			
Alkbiyik et al., 2008	Adult, first-generation, psychiatric outpatients, Germany, Turkey	Higher depression severity. Lower quality of life (less satisfaction with physical health and work) Similarities: Similar satisfaction with financial situation and leisure High depression severity. More report of depressive symptoms Lower report of hostility, anxiety or interpersonal symptoms. Similarities: High levels of somatization Higher scores on self-reported and assessor-rated depression. Higher scores in symptoms as lassitude (lethargy) and lowest in reduced appetite. Similarities: high depression severity and high level of somatic symptom severity. Similarities: report of core depressive symptoms, such as inability to feel, pessimistic thoughts, and sadness. More report of suicidal thoughts, irritability, and dissatisfaction. More report of pain of arms or legs, face or head, gastric problems or stomachache, memory loss, hallucinations, hiccup or burning in breast or stomach. Similarities: report of sleeping problems, weight and appetite changes, negative body-image, working problems, pessimism, diminished libido, back pain, fatigue.	Native Turkish (living in Turkey)	Native Europeans
Alkbiyik et al., 2009	Adult, first-generation, psychiatric outpatients, Germany, Turkey			
Deisenhammer et al., 2012	Female adult in-and outpatients, Austria			
Sariaslan et al., 2014	Adult general population attending the general practice, Germany			
Schrier et al., 2010	Adult community individuals, the Netherlands	More frequently reported increase of appetite or weight, and less frequently loss of interest, low self-esteem, feeling guilty and concentration problems (than the natives).	Moroccan immigrants	Native Dutch Lower general depression scores Lower general depression scores (than the natives).

(continued on next page)

Table 1 (continued)

	Turkish immigrants	Moroccan immigrants	Native Dutch
Smits et al., 2005 Elderly community individuals, the Netherlands	Similarities: All reported symptoms in the domains: mood, psychomotor, cognitive and vegetative disturbances. Similar level of disability. Women: irritation, forgetfulness, impatience, demoralization, restlessness, worrying (interview), sleep problems, lost interest in sex (CIDI). Taboo around sexuality and suicide. Men: Irritability and loneliness, worrying, sadness, forgetfulness and restlessness (interview), whereas lack of energy, sleep and eating problems (CIDI). Similarities: Embarrassment and reluctance to discuss mental health. CES-D factor structure (4 factors): combined depressed affect with somatic factor 1, combined depressed affect with somatic factor 2.	Similarities: All reported symptoms in the domains: mood, psychomotor, cognitive and vegetative disturbances. Similar level of disability. Women: few reported symptoms i.e., sleep, eating and concentration problems (interview, CIDI). Taboo around mental complaints in general. Men: forgetfulness, tiredness, and restlessness. Taboo concerning labeling symptoms as depression.	
Spijker et al., 2004 Low SES, elderly community individuals, the Netherlands	Similarities: Positive affect, and interpersonal affect factors were present and clearly distinguishable. All groups differed from the original 4-factor structure: depressive affect, positive affect, somatic symptoms and interpersonal relationships (Radloff, 1977).	CES-D factor structure (3 factors): combined depressed affect with somatic symptoms.	CES-D factor structure (5 factors): pure depressed affect, somatic factor 1, somatic factor 2.

Note.

<sup>a</sup> Polish-German migrants.

<sup>b</sup> Eastern-Europe-German and ex-Soviet Union-German migrants.

America, Europe; see Haroz et al., 2016 for a review on this topic). The studies examined samples of Turkish- Dutch and -Swedish, low-educated, female patients with mostly major depression (Dutch sample) or a combination of dysthymic and anxiety disorders (Swedish sample). In addition to a broad range of somatic, anxiety and depressive complaints (Baarnhielm and Ekblad, 2000; Borra, 2011), Turkish women interviewed in their own language expressed several relevant Turkish idioms of distress that referred to bodily or psychological sensations, often lacked identical equivalents in the ‘foreign’ language, and were preferred above some unfamiliar Western concepts such as worthlessness and self-punishment (Borra, 2011). However, the use of idioms of distress was avoided by Turkish-Swedish, because they feared being misunderstood by their therapists (Baarnhielm and Ekblad, 2000).

Results of (average MQ) studies that compared Turkish immigrant populations to other immigrant groups or native individuals, showed that Turkish populations in Germany, Austria and the Netherlands reported symptoms across all measured domains of depression (i.e., mood (depression, apathetic), vegetative, somatic, psychomotor, cognitive, positive affect, interpersonal affect depending on the instrument used; Deisenhammer et al., 2012; Schrier et al., 2010; Spijker et al., 2004). However, Turkish groups, compared to natives, often reported higher levels of (core) depression severity (Deisenhammer et al., 2012; Schrier et al., 2010). Also, there was some evidence that Turkish immigrant samples more often endorsed symptoms such as suicidal thoughts, irritability, and dissatisfaction compared to natives (Beutel et al., 2016; Sariaslan et al., 2014), whereas natives tended more often to report symptoms such as low self-esteem and self-deprecation (Sariaslan et al., 2014; Schrier et al., 2010). Both Turkish and native populations also reported somatic complaints, such as back pain and fatigue. However, also here, Turkish populations often reported higher levels of somatic symptom severity, or a combination of somatic and mood symptoms (Sariaslan et al., 2014; Spijker et al., 2004). Turkish groups reported similar psychopathology levels than Eastern European immigrants did (Mewes et al., 2010), but higher suicidality (Beutel et al., 2016), though studies were scarce.

Two studies provided some evidence that the symptom manifestation varied depending on the clinical features of the sample (i.e., symptom severity related to the clinical setting). A Turkish-Austrian in- and outpatient sample reported more similarity to natives on core depressive symptoms (WQ; Deisenhammer et al., 2012) than Turkish-German in the general practice did (SQ; Sariaslan et al., 2014). However, the divergent countries, instruments, and quality of the studies hampered formulating robust conclusions about symptom profile differences. Moreover, three (average WQ) studies showed that different symptom manifestation could also be related to different living contexts (receiving country and country of origin) or migration, since they found that immigrant patients reported more mood depressive symptoms, and fewer symptoms such as hostility and interpersonal sensitivity compared to Turkish patients living in Turkey (Akbiyik et al., 2008; 2009; Deisenhammer et al., 2012).

The symptom manifestation of mostly middle-aged, older adults, first-generation Moroccan people and patients was examined in three MQ Dutch studies (Schrier et al., 2010; Smits et al., 2005; Spijker et al., 2004). Moroccan- Dutch reported symptoms on all domains measured by the SCL-90 and CES-D (mood, cognitive, psychomotor, vegetative, positive affect and interpersonal affect; Spijker et al., 2004) but, compared to natives, mood and somatic complaints were combined in one domain (Schrier et al., 2010; Spijker et al., 2004). However, Moroccan-Dutch older adults found it embarrassing to discuss mental health complaints, and reported spontaneously very few, mostly somatic complaints, such as fatigue, sleep, eating and concentration problems (Smits et al., 2005). Moreover, the CIDI showed a method and item bias since questions related to episodes in the past and abstract elements were not easily understood. Poor education and low verbalization ability in this population were complicating factors (Smits et al., 2005).

**Table 2**  
Overview of RCTs for depression among Turkish immigrant populations in Europe.

Study reference	Intervention and control condition	Treatment effects on depression compared to control group/comparator intervention	Conclusions
Nickel et al., 2006b	Psychosomatic rehabilitation <sup>a</sup> with bioenergetic therapy <sup>b</sup> vs. psychosomatic rehabilitation with gymnastic exercises	Difference in score change between groups after six weeks (95% CI; intention to treat): –1.8 (–4.5 – 0.1), $p = 0.03$ .	Bioenergetic therapy led to a greater improvement in depressive symptoms compared to standard treatment.
Renner and Berry, 2011	Group CBT vs. culturally adapted self-help group <sup>c</sup> vs. wait-list	Hedges $g$ (SE) <sup>*</sup> : - CBT vs. control group for CESD: –0.6 (0.41) - CBT vs. wait-list group for PHQ: –0.64 (0.41). - SHG vs. wait-list for CESD: –0.1 (0.4) - SHG vs. control group for PHQ: 0.00	Interventions were not superior to the wait-list condition.
Unlu Ince et al., 2013	Internet-based, self-guide, culturally adapted intervention <sup>d</sup> vs. wait-list	Cohen's $d$ (95% CI): At posttest, intention to treat: 0.37 (–0.03–0.78), $p = 0.07$ . At posttest per protocol ( $n = 30$ ): 1.68 (0.69–2.67), $p < 0.001$ ; At follow-up per protocol: 1.13 (0.19–2.07), $p = 0.02$ . At posttest, completers only ( $n = 56$ ): 0.72 (0.17–1.26), $p = 0.01$ ; At follow-up completers only 0.94 (0.23–1.65), $p = 0.01$ .	No significant clinical change (based on Jacobson and Truax, 1991) was observed in the reduction of depressive symptoms.

Abbreviations: CI, Confidence intervals; SE, Standard deviation; CBT: Cognitive-behavioral therapy; CESD, Center for Epidemiologic Studies Depression Scale; SHG, Self-help group; PHQ, Patient health questionnaire.

\* Calculated based on data provided in the corresponding publication.

<sup>a</sup> Psychosomatic rehabilitation is an eclectic program including individual and group gestalt, behavioral and social therapy offered in the patient's mother tongue or preferred language

<sup>b</sup> Bioenergetic therapy consisted of expression exercises, exercises setting boundaries, vocal exercises, respiratory and bodily movement exercises, internal and external perception, expression of aggression, and grounding.

<sup>c</sup> Culturally sensitive, community-based self-help groups aimed at promoting autonomy, empowerment and problem-solving capacities.

<sup>d</sup> Intervention was an internet-based version of a self-guided, problem-solving intervention with cultural elements, with weekly coach support through email.

### 3.2. Treatment effectiveness

Seven studies examined the use and effectiveness of psychotherapies in Turkish samples. The studies were conducted in the Netherlands ( $n = 1$ ), Germany ( $n = 4$ ), and Austria ( $n = 2$ ). We did not retrieve studies examining the effectiveness of psychotherapies in Moroccan samples, or the effectiveness of pharmacotherapy (antidepressants) for the treatment of depression of Turkish and Moroccan immigrants. Table 2 shows an overview of the three available RCTs.

#### 3.2.1. Cognitive behavioral therapy vs. culturally adapted self-help groups

Renner and Berry (2011) conducted a RCT (WQ) comparing group cognitive behavioral therapy (CBT) provided by a German-speaking clinician with a Turkish interpreter, to culturally adapted self-help groups moderated by Turkish native speakers, and to wait-list. Findings of the intention-to-treat analyses showed that neither CBT- nor self-help groups were effective in diminishing depressive symptoms of Turkish migrant women. CBT participants showed decreased depression scores at posttest, but they deteriorated at follow-up (Renner and Berry, 2011). Most completers of both the CBT and the self-help interventions (61.8%) showed no significant symptomatic change, 35.3% improved and 2.9% deteriorated (Renner and Berry, 2011). Nevertheless, qualitative analyses of the therapeutic process of the self-help groups indicated that participating women felt supported by the group members, gained insight in problematic interaction patterns, and behaved more independently and assertively at the end of the treatment (Siller et al., 2017). However, there is no evidence that this process only took place in the self-help groups, since the CBT qualitative process was not reported. In this study, they found that younger age, more years living in the receiving country and a higher number of traumatic experiences (without reference to PTSD symptoms) predicted a greater symptom reduction; however, the regression analyses might have been underpowered.

#### 3.2.2. Problem solving therapy

Intention-to-treat analyses of a RCT (WQ) showed that an online,

culturally adapted, problem-solving intervention for Turkish-Dutch with depressive symptoms was not superior to wait-list in reducing depressive symptoms at posttest or follow-up (see Table 2 for the detailed results; Ünlü Ince et al., 2013). Even though online recruitment seemed successful for reaching participants of Turkish descent, only 20% of the participants assigned to the experimental condition completed the full program, and most of the participants did not start the program or only followed 1–2 sessions (Ünlü Ince et al., 2013), which highlights the importance of engaging patients in treatment, also in e-health modules. The type of symptoms experienced (physical and/or psychological) did not differ between the groups and thus does not explain the findings. Despite the strong study design and middle to high response rates, high attrition at posttest and follow-up leading to low statistical power hampered conclusions and generalizability of the findings.

#### 3.2.3. Eclectic treatments

Psychosomatic rehabilitation programs are common practice in Germany for working with Turkish in- and outpatients with psychosomatic symptoms and high depression prevalence (48–96%; Nickel et al., 2006a). These are eclectic programs including individual and group sessions of non-verbal, gestalt, behavioral, and social therapy often offered in the patient's mother or preferred language (Nickel et al., 2006a). The third RCT study (WQ) examined the added value of bioenergetic therapy, a treatment method comprising interventions on the physical level based on psychoanalytical premises, to psychosomatic rehabilitation. This study showed that the group receiving additional bioenergetic therapy showed a greater reduction of somatization as well as of depressive, anxiety and hostility symptoms. They also showed a greater improvement regarding anger levels and anger expression (more directed outwards than inwards; Nickel et al., 2006b). This is the only documented study examining the effectiveness of the working elements of eclectic psychosomatic rehabilitation programs.

Three other WQ German studies examined the effectiveness of the psychosomatic rehabilitation programs mentioned above, though

without another intervention group (Möske et al., 2011; Nickel et al., 2006a; Zollmann et al., 2016). Intention-to-treat analyses revealed significant improvement of Turkish-German patients at discharge on depressive, somatic, anxiety, and phobic symptoms, as well as paranoid ideation, psychoticism, hostility and the global severity index (Nickel et al., 2006a; Zollmann et al., 2016). There was no reduction of obsessive–compulsive symptoms or interpersonal difficulties, and poor to moderate improvement on socio-medical indicators (e.g., the percentage of patients employed, number of working hours/ weeks; Nickel et al., 2006a). This study excluded unemployed patients (students, housewives, retired patients), which might have affected the external validity of the findings. Turkish-Germans showed similar symptom reduction to native Germans and other immigrant groups in the two studies with control groups, including one with a large national sample (Möske et al., 2011; Zollmann et al., 2016). However, Turkish-German patients showed the smallest treatment effect sizes regarding depression, other symptoms and general psychopathology in a small sample (Möske et al., 2011). Moreover, Turkish-German patients showed a lower reintegration into working life after treatment than native German did (Zollmann et al., 2016).

### 3.3. Obstacles and facilitators for treatment accessibility and therapeutic success

There were few and mixed results regarding the access and utilization of psychiatric services by immigrant patients – including Turkish-German. One WQ study found that the proportion of immigrants receiving psychosomatic rehabilitation (2.7%) was smaller than the 8.2% expected based on German public health information (Möske et al., 2011). Nevertheless, two other WQ studies (one including a large national sample of users of psychosomatic rehabilitation and one in a general psychiatric outpatient setting) found that Turkish-German patients (especially women) made higher use of psychosomatic rehabilitation compared to native Germans, other immigrant groups, and to the expected rate according to the national migration figures (Schouler-Ocak et al., 2010; Zollmann et al., 2016).

#### 3.3.1. Obstacles and facilitators for accessing mental health care

Table 3 shows the detailed findings of studies examining possible obstacles and facilitators for accessing mental health care. The most commonly mentioned obstacles (in MQ and WQ studies) were related to negative attitudes towards psychotherapy, including fear of stigmatization and pessimism, which were mentioned by Turkish-Dutch, Turkish-German, Turkish-Swedish, and Moroccan-Dutch respondents and patients of the first and the second generation, especially those more oriented towards their culture of descent (Baarnhielm and Ekblad, 2000; Calliess et al., 2007; Fassaert et al., 2009; Heredia Montesinos et al., 2012). Turkish- and Moroccan-Dutch groups also reported (in MQ studies) that ‘self-reliance’ and little knowledge of the mental health care system were obstacles for accessing mental health care (Fassaert et al., 2009). Also, patients reporting more traditional norms and values expressed more passive medical care needs than they reported psychological care needs (Nap et al., 2015).

Among possible facilitators of mental health care accessibility, authors mentioned (recent) social measures covering mental health care expenses (Schouler-Ocak et al., 2010) and the development of more easily accessible (e.g., online) and culturally appropriate therapies (Calliess et al., 2007; Fassaert et al., 2010a, Möske et al., 2011; Schouler-Ocak et al., 2010; Ünlü Ince et al., 2013).

#### 3.3.2. Obstacles and facilitators for therapeutic success

Table 3 also shows the obstacles and facilitators for positive treatment outcomes. At least 70% of the studies, of MQ and WQ, mentioned the difficult starting position of Turkish-German, Turkish-Swedish, Turkish-Dutch and Moroccan-Dutch patients as a potential obstacle for in- or outpatient treatment success. Immigrant (Turkish) patients

accessed specialized inpatient psychiatric care after 7 years from the start of complaints and after other psychotherapy treatments, which might have increased the chronicity and severity of the illness and negatively affected the prognosis (Nickel et al., 2006a). Turkish patients also showed the highest levels of psychological symptoms and socio-economic adversity before treatment compared to natives and other immigrant groups (Möske et al., 2011; Möske et al., 2008; Nap et al., 2015; Nickel et al., 2006a; Reich et al., 2015; Schouler-Ocak et al., 2010; Siller et al., 2017), which in some studies was found predictive of worse treatment outcomes (Möske et al., 2011; Nap et al., 2015; Zollmann et al., 2016) and also of higher dropout among Turkish- and Moroccan-Dutch (Fassaert et al., 2010a). Therapy non-responders reported low German language proficiency, had a Turkish nationality and appeared to drop out more often than responders did (Möske et al., 2008).

Other obstacles to positive treatment outcomes were related to the patients’ illness explanatory models, the interaction of patients with providers, and the quality and characteristics of the care provided. It was salient that Turkish patients reported low internal and high external locus of control and attributional theories (Baarnhielm and Ekblad, 2000; Reich et al., 2015; Siller et al., 2017), which predicted lower expectation of healing due to psychotherapeutic treatment (Reich et al., 2015) and was associated to high acceptance, and utilization of, and trust in traditional methods, family, and Turkish doctors (Baarnhielm and Ekblad, 2000; Fassaert et al., 2009). Also, Turkish-German psychiatric inpatients, compared to natives, expected to assume a mainly passive role during psychotherapy and to benefit more from pharmacological treatment (Reich et al., 2015). Furthermore, a Dutch study found that Turkish-Dutch individuals more often experienced general discordance between their perceived care need and the care they received than natives did, which was partly explained by baseline symptom differences (Fassaert et al., 2009).

Regarding the characteristics of the provided care, one MQ study in the Netherlands showed that GP’s did not meet the guidelines for referral and prescription of medication with Turkish- and Moroccan-Dutch patients as often as with natives. This result was accounted for by the patients’ age, gender, marital status, and the statistical dependency of patients within general practices (inter-practice variation; Fassaert et al., 2010a). Another MQ study found that Turkish- and Moroccan-Dutch patients receiving secondary care had lower treatment intensity compared to natives, also after adjusting for demographics and illness severity (Fassaert et al., 2010b). In Germany, two WQ studies found that Turkish-German had the shortest treatment duration in inpatient psychosomatic rehabilitation and general outpatient care (Möske et al., 2011; Schouler-Ocak et al., 2010), however, this finding was not confirmed by a recent, also WQ study with a much larger sample (Zollmann et al., 2016). The latter study also showed that receiving the same type of treatment or treatment duration as the native group did was not necessarily a facilitating factor of therapeutic success. Turkish-German still showed worse mental health and work outcomes (Zollmann et al., 2016).

Factors facilitating therapeutic success included a participatory acculturation strategy in the Netherlands (Nap et al., 2015) and younger age and longer duration of stay in Austria (Renner and Berry, 2011), which were factors predictive of greater symptom reduction during or after treatment for depression. Furthermore, female gender, having a recurrent, more severe depression, and being older predicted less dropout (Fassaert et al., 2010a). Additionally, authors advised therapies adapted (at all levels) to the individual needs, cultural expectations, explanatory models, and the higher levels of psychological symptoms and socioeconomic adversity of (Turkish) immigrant patients (e.g., Nickel et al., 2006b; Renner and Berry, 2011; Siller et al., 2017).

## 4. Discussion

The aim of this review was to systematically evaluate the state of the



**Table 3**

Potential barriers and facilitators of psychological treatment and treatment outcomes among ethnic minority patients with depressive symptoms in the included studies.

Study	Immigrant sample, study country	Potential barriers	Potential facilitators
<b>Access to mental health care for depressive symptoms – Turkish immigrants</b>			
Baarnhielm and Ekblad, 2000	Low SES, female, first-generation Turkish, Sweden	- Negative attitudes towards psychotherapy.	
Calliess et al., 2007	Middle-highly educated, young, female and male, second-generation Turkish, oriented towards the Turkish culture, Germany	- Negative attitudes towards psychotherapy (e.g., less openness and, especially among women, fear of stigmatization due to psychotherapy).	- Culture-sensitive psychotherapeutic education.
Heredia Montesinos et al., 2012	Female, first-generation Turkish, Germany	- Fear of stigmatization because of depressive symptoms (not somatic symptoms)	
Mösöko et al., 2011	Turkish inpatients, Germany		- Use of migration background-oriented treatment interventions.
Schouler-Ocak et al., 2010	Turkish psychiatric outpatients, Germany		- Easier accessibility to mental health care, encouraged by social measures (expense reduction) of mental health care.
Unlu Ince et al., 2013	Mostly first-generation Turkish, The Netherlands		- Development of culturally adapted therapies. - Provision of easily accessible (e.g., internet-based, in native language), flexible treatments. - Warranty of privacy and anonymity during treatment.
<b>Access to mental health care for depressive symptoms – Turkish and Moroccan immigrants</b>			
Fassaert et al., 2009	Low SES, Community Turkish, Moroccan, The Netherlands	- Self-reliance. - Low levels of health literacy. - Pessimism.	
Nap et al., 2015	Turkish, Moroccan outpatients, The Netherlands	- Traditional acculturation (fewer skills, more traditional norms and values) related to passive medical care needs (drug prescription, expert problem clarification, advice, guidelines), and not to psychological care needs (support, insight, regain control, reality contact, feelings and thoughts expression).	
<b>Therapeutic success for depressive symptoms – Turkish immigrants</b>			
Baarnhielm and Ekblad, 2000	Low SES, female, first-generation Turkish, Sweden	- Troubles and dissatisfaction understanding therapists (jargon, psychological illness models and arguments for treatment). -Low internal locus of control to influence recovery. -Psychological attributions, which were associated with badness, lack of self-control, and shame. -Reluctance to talk about use of traditional methods.	- Sense of trust and being trusted and understood by the therapists. - Family as social support
Mösöko et al., 2008	Turkish inpatients, Germany	- Higher levels of psychological distress. - Higher social burden (e.g., lower education, unemployment, longer disability duration, lower language proficiency). - Turkish nationality.	
Mösöko et al., 2011	Turkish inpatients, Germany	- Non-responders dropped out 5 times more often. - Higher levels of psychological distress (e.g. comorbidity with personality disorder). - Higher social burden (e.g., unemployment, in welfare, longer disability duration). - Shorter treatment duration. - Higher symptom severity at baseline. - Turkish background.	- Use of migration background-oriented treatment interventions that address the initial psychosocial burden.
Nickel et al., 2006a	Turkish inpatients, Germany	- High comorbidity with somatic-symptom and anxiety disorders. - Late referral to specialized care, which could be related to illness chronicity and negative prognosis.	- Use of integrated therapeutic approaches including treatment elements in the mother tongue, non-verbal interventions (e.g., involving music, dance, physio-, movement, bioenergetic therapy), and combination of gestalt therapy, individual and group psychotherapy sessions. - Regular psychosomatic training of physicians. - Illness prevention measures targeting the labor immigrant population.
Nickel et al., 2006b	First-generation, Turkish inpatients, Germany		- Treatment in the mother tongue. - Involvement of therapists of the same cultural background.
Reich et al., 2005	Mostly first-generation, Turkish psychiatric inpatients, Germany	- Low internal locus of control, high external locus of control. - High fatalistic (e.g., bad luck), and supernatural (e.g., god, evil spirits) illness attribution predicted lower motivation and expectation of healing with psychotherapy. - Expectation to assume a passive role during psychotherapy. - Higher levels of psychological distress.	- Expectation to benefit more from pharmacological treatment. - Address motivation and illness beliefs early on to select/ adjust treatment.
Renner and Berry, 2011		- Older age - Recently arrived to host country.	- Culturally adapted treatment interventions (e.g., involvement of therapists of similar cultural

(continued on next page)

Table 3 (continued)

Study	Immigrant sample, study country	Potential barriers	Potential facilitators
	Mostly first-generation, female Turkish patients with recurrent depression, Austria		background and speaking the mother tongue when possible), in line with patient's expectations and considering demographic characteristics within the ethnic minority group (e.g., older women) and migration status (e.g., recently arrived in the host country). - Outpatient setting. - Culturally adapted therapies.
Schouler-Ocak et al., 2010	Turkish outpatients, Germany	- Higher levels of psychological distress. - High social burden (e.g., younger, more sick-days). - Shorter treatment duration.	
Siller et al., 2017	Mostly first-generation, female Turkish patients with recurrent depression, Austria	- Higher levels of psychological distress. - High social burden (e.g., complex living situation, feelings of helplessness and uncontrollability). - Indication of illness 'secondary gain' (e.g., attention of husband).	- Long-term treatment that also encloses empowerment on a familial and societal level. - Enrichment of the social capital and network (e.g., therapy groups). - Gaining emancipation. - Consider issues of trust to decide whether an individual or a group treatment is suitable.
Zollmann et al., 2016	Older adults, Turkish in- and outpatients, Germany	- Older age, - Higher social burden (e.g., low income, work disability before treatment), especially among women. - Language and communication problems	
<b>Success of treatment for depressive symptoms – Turkish and Moroccan immigrants</b>			
Fassaert et al., 2009	Low SES, Turkish, Moroccan community individuals, The Netherlands	- Turkish-Dutch patients reported higher need for mental health care (e.g., social intervention), but experienced discordance between their care need and the care received. - Moroccan-Dutch received social skill interventions less often than desired. - Discordance between care need and care received was much explained by higher reported levels of psychological distress. - Discordance could also be related to stigma towards mental health problems, disproportionate somatization of psychological problems, or problematic doctor-patient communication.	- Attunement of the provided care to the reported care needs. - Moroccan-Dutch reported less need for drugs, information and referral.
Fassaert et al., 2010a	Turkish, Moroccan general practice patients, The Netherlands	- Ethnic minority patients –in interaction with other sociodemographic factors–were less likely to be treated according to clinical guidelines. - Language proficiency could have an impact on the patient-provider communication.	- Mental health care adapted to suit clients from varied cultures
Fassaert et al., 2010b	Turkish, Moroccan in- and outpatients, The Netherlands	- Lower treatment intensity (number of contacts per month) for the ethnic minority patients. - Higher dropout levels from depression treatment for the Turkish and Moroccan patients than the control group (17.5% and 15.5%, vs. 12.4%, respectively). Differences in depression severity and demographic factors explained this to a large extent but the change in effect sizes was sometimes negligible. - Older age, living in highly urbanized areas, lower comorbidity (were related to worse concordance urgency-waiting time)	- Female gender, older age, severe, recurrent depression (predicted lower dropout rate). - Promotion of culturally-sensitive approaches in mental health services.
Nap et al., 2015	Turkish, Moroccan, The Netherlands	- Higher symptom severity at baseline	- Participation in the society / higher cultural adaptation related to better treatment outcomes.

art regarding the symptom manifestation, the treatment effectiveness, and the obstacles and facilitators for therapeutic success for Turkish and Moroccan immigrant populations with depressive disorders or symptoms in Europe. Doing so, we strove to highlight the aspects of diversity that are at the intersection of the social position and mental health of these populations, to assess the quality of the conclusions, and to formulate implications of the findings for culturally and diversity-sensitive clinical practice.

#### 4.1. Depression manifestation or related idioms of distress

Findings pointed towards a combined profile of symptoms for Turkish populations, in which depressive, anxiety and somatic symptoms (especially pain) play a prominent role (Baarnhielm and Ekblad,

2000; Borra, 2011; Heredia Montesinos et al., 2012; Sariaslan et al., 2014; Spijker et al., 2004). Irritability, hallucinations and suicidality also appeared relevant, though inconsistently reported by Turkish individuals (Beutel et al., 2016; Borra, 2011; Morawa and Erim, 2014a; Sariaslan et al., 2014), whereas Western concepts, such as worthlessness, guilt, self-criticism, and self-deprecation were less frequently endorsed (Sariaslan et al., 2014; Schrier et al., 2010).

There were few studies on the symptom profile of Moroccan-Dutch, and (in contrast to Turkish populations) there were no studies assessing somatic disorders among Moroccan patients with depression. The current, moderate quality studies indicated that Moroccan-Dutch more often reported some specific symptoms, such as anhedonia, poor appetite, and suicidal ideation than native patients did, and that they report a combination of depressive and somatic symptoms (Schrier

et al., 2010; Smits et al., 2005; Spijker et al., 2004). These findings were in agreement with findings worldwide that show that somatic complaints are commonly reported as depression features (Haroz et al., 2016); however, the findings based on factor structure analyses showed a more intertwined character of depressed affect and somatic symptoms only for the Turkish and Moroccan samples (Spijker et al., 2004).

Stemming from studies with Turkish populations, some findings indicated that patients were more likely to report those symptoms that were more accepted, recognized or reinforced in their specific living and cultural context (Akbiyik et al., 2009), which might explain why Turkish immigrant patients reported more depressive and less hostility, anxiety or interpersonal symptoms than Turkish nationals did (Akbiyik et al., 2009). Also, some studies found that individuals feared stigmatization and felt embarrassment, especially related to depressive and psychological symptoms, and less to somatic symptoms (Borra, 2011; Heredia Montesinos et al., 2012; Smits et al., 2005), which might influence symptom presentation. Furthermore, qualitative studies showed that Turkish women adapted their symptom presentation or idioms of distress to the level of understanding of their therapist (Baarnhielm and Ekblad, 2000), which highlights the importance of doctor–patient interactions for symptom manifestation. Despite the fact that Turkish and Moroccan often reported higher psychopathology compared to natives, the only study on functional status showed that their level of disability was comparable to that of the natives (Schrier et al., 2010); however, no conclusion can be yet drawn regarding the association between the level of psychopathology and the level of functioning.

Based on the current findings, we cannot draw conclusions on whether any of the mentioned factors related to symptom manifestation could affect disorder rates and associated health care utilization, or whether they could be of influence regarding the effectiveness of treatments. To explore the underlying mechanisms and test potentially relevant hypotheses, such as the “immigrant paradox”, which suggests that immigrants of the first generation are less at risk of developing psychological disorders than the native populations or the second generation are (e.g., Lara, 2014; Sam et al., 2008), more research is needed, based on a multilevel approach involving individual, group as well as country data (Duckers et al., 2016; McNally, 2018).

#### 4.2. Treatment effectiveness, obstacles, and facilitators for therapeutic success

Research on treatment effectiveness of Turkish immigrant groups in Europe was still scarce and heterogeneous, and non-existing in Moroccan groups. Also, there were no reports on the effectiveness of pharmacotherapy in these groups. Based on the three available RCTs, group CBT, (culturally adapted) self-help groups (Renner and Berry, 2011), or online culturally adapted problem-solving therapy (Ünlü Ince et al., 2013) were not effective in (durable) reducing depressive symptoms in Turkish immigrant groups. Only bioenergetic therapy (interventions on a physical level) showed an additional value to psychosomatic rehabilitation (individual and group gestalt, behavioral and social therapy offered in the patient's preferred language; Nickel et al., 2006b). The combination of both therapies appeared more effective in reducing depressive and psychosomatic symptoms compared to only psychosomatic rehabilitation (Nickel et al., 2006b). Psychosomatic rehabilitation alone was also found effective in improving the mental health of Turkish-German inpatients (Möske et al., 2011; Nickel et al., 2006a; Zollmann et al., 2016), but the studies were of low quality and lacked reference groups. Nonetheless, making allowance to this very limited state of the art, one may conclude that there is no convincing evidence on the effectiveness of -evidence-based-treatments (whether or not they are ‘culturally adapted’) for depression in Turkish-European groups.

The RCT findings were, on the one hand, somewhat unexpected, given that there are some positive results of standard, or culturally

adapted, evidence-based therapies in the treatment of other ethnic minorities (Antoniades et al., 2014; Huey et al., 2014; Ünlü Ince, Riper, van 't Hof, and Cuijpers, 2014). On the other hand, these findings represent more evidence of the fact that the effectiveness of psychotherapy for depression still needs general improvement, since its success rate across all sample types is only 14% higher compared to the natural illness course (Cuijpers and Cristea, 2015; Cuijpers et al., 2014).

The non-significant treatment outcomes might be related to the high attrition rate and small sample sizes (Renner and Berry, 2011; Ünlü Ince et al., 2013). The low treatment effectiveness might also be related to the discussed obstacles for therapeutic success or positive treatment outcomes, especially those indicating that Turkish and Moroccan immigrants start treatment with disadvantage at the intersection of ethnicity, higher social burden and higher levels of psychological distress (e.g., Fassaert et al., 2009; Möske et al., 2011; Möske et al., 2008; Reich et al., 2015), which predicted higher perceived care needs (Fassaert et al., 2009), worse treatment outcomes (Möske et al., 2011; Nap et al., 2015) and higher dropout (Fassaert et al., 2010b). Among factors contributing to social burden, perceived ethnic discrimination has appeared as an important predictor of higher levels of depression in Turkish and Moroccan immigrant populations (e.g., Ikram et al., 2016; Ikram et al., 2015; van Dijk et al., 2011), and it might be a mediating factor of (poor) treatment outcomes. It is possible that the examined therapies did not provide the patients with enough insights or practical guidance to cope with the social hardship and acculturation challenges they face, or that therapies were not compelling enough to help improve their various symptoms of depression. In the future, a more in-depth analysis of the effect of disorder and symptom comorbidity might also shed some light on why the examined therapies did not work. Furthermore, persistent cognitive patterns, such as fear of stigma related to mood depressive symptoms (Heredia Montesinos et al., 2012) and psychological attributions (Baarnhielm and Ekblad, 2000), might have represented an insurmountable challenge for short therapeutic treatments as the ones studied. Some authors have also hypothesized that symptoms have an adaptive function in the living context (e.g., secondary gain), so reduction of symptoms might not be feasible before changing the familial or social context (Siller et al., 2017).

Important barriers to accessing (psychological) treatment included more need for and reliance on passive medical care (Nap et al., 2015), negative attitudes towards psychotherapy, such as less openness to, and lower expectation of recovery after psychotherapy (Baarnhielm and Ekblad, 2000; Calliess et al., 2007; Fassaert et al., 2009), especially among individuals more oriented to the Turkish culture (Nap et al., 2015), and women fearing stigma due to psychotherapy (Calliess et al., 2007; Heredia Montesinos et al., 2012). These findings complemented results in other clinical populations showing that expectation of therapeutic improvement is a key predictor of improvement of depressive symptoms (Rutherford et al., 2010). Among obstacles for therapeutic success, the most salient were low internal locus of control (Baarnhielm and Ekblad, 2000; Reich et al., 2015), high levels of psychological distress (Möske et al., 2011; Möske et al., 2008; Reich et al., 2015; Schouler-Ocak et al., 2010; Siller et al., 2017), comorbidity (Nickel et al., 2006a), and high social burden (Möske et al., 2011; Möske et al., 2008; Schouler-Ocak et al., 2010; Siller et al., 2017; Zollmann et al., 2016). Further research examining the mechanisms through which clinical, social and demographic factors affect the therapeutic success of Turkish and Moroccan immigrant patients is also necessary.

#### 4.3. Implications for clinical practice

The symptom profile of depression for Turkish and Moroccan appeared broader than it was specified by the DSM-IV and DSM-5. Next to the ‘typical’ core depressive symptoms (i.e., sadness, depressed mood, loss of vitality; Heredia Montesinos et al., 2012; Sariaslan et al., 2014), service providers should be alert for a more mixed presentation of

affective and somatic aspects of depression by Turkish and Moroccan patients (Akbiyik et al., 2009; Baarnhielm and Ekblad, 2000; Deisenhammer et al., 2012; Sariaslan et al., 2014; Spijker et al., 2004), that also include anxiety symptoms (Borra, 2011; Heredia Montesinos et al., 2012), irritability (especially for Turkish groups; Borra, 2011; Morawa and Erim, 2014a; Sariaslan et al., 2014), higher suicidal ideation (Beutel et al., 2016; Sariaslan et al., 2014; Schrier et al., 2010), and somatic complaints (Sariaslan et al., 2014). Turkish and Moroccan patients reported embarrassment and concerns about being stigmatized due to suicidal ideation and behavior, and other depressive and psychological distress symptoms, such as hallucinations (Borra, 2011; Smits et al., 2005). An open, non-judgmental and informative dialogue in order to assess symptoms and engage patients in treatment seems advisable to overcome the initial gap.

Furthermore, based on two RCT studies, culturally adapted, problem-solving self-help groups, online interventions, and CBT-groups might not be effective for Turkish immigrant patients (Renner and Berry, 2011; Ünlü Ince et al., 2013), at least regarding symptomatic improvement (Siller et al., 2017). Though the RCT and prospective studies examining eclectic psychosomatic rehabilitation programs in the patients' mother tongue, also integrating bioenergetic therapy, showed some positive results on depressive and psychosomatic symptoms, the low quality and small amount of the studies hampers formulating recommendations for clinical practice (Nickel et al., 2006a,b).

In light of the limited effectiveness of the so-called 'evidence-based' therapies and shaping clinical practice with Turkish and Moroccan immigrants with depression, clinicians might do well in considering the facilitating factors for care access and therapeutic success discussed in this review. Among facilitators for accessing treatment, offering coverage of mental health care expenses (Calliess et al., 2007; Schouler-Ocak et al., 2010) and offering interventions in the native language to lower the threshold for seeking mental help (Ünlü Ince et al., 2013) have been recommended.

Facilitators for therapeutic success might include offering a more intensive, tailored therapy to patients with severe disorders at baseline (Nap et al., 2015). Promoting societal participation also influences positively the treatment outcome (Nap et al., 2015). Additionally, according to traditional roles, older group leaders might be preferred to lead therapy groups, especially for older Turkish women (Renner and Berry, 2011). Interventions in evidence-based treatments could also offer a space for discussing traditional practices, such as carrying amulets or visiting traditional healers (Baarnhielm and Ekblad, 2000), and topics such as running a household, feelings of isolation and social difficulties, especially those concerning family, husband and children (Renner and Berry, 2011; Siller et al., 2017), which appeared especially relevant for first-generation, female, Turkish-Austrian patients. Furthermore, Turkish women considered it important for their recovery that their clinicians trusted them, listened to them calmly, and took them seriously (Baarnhielm and Ekblad, 2000).

Other possible facilitators of therapy success were exploring both the clients' and practitioners' illness beliefs and attributional styles (Baarnhielm and Ekblad, 2000; Reich et al., 2015) with a vocabulary matching the patients' education level (Baarnhielm and Ekblad, 2000). It appeared also relevant to discuss motivational and acculturation issues before and during the therapy (Baarnhielm and Ekblad, 2000; Calliess et al., 2007; Fassaert et al., 2009; Nap et al., 2015; Reich et al., 2015). Since low levels of mental health care literacy (Baarnhielm and Ekblad, 2000), stigma (Calliess et al., 2007), and difficulties understanding therapists' vocabulary and health models (Baarnhielm and Ekblad, 2000) were mentioned as important obstacles for treatment, more information provision about mental health care and its methods, and reassurance regarding privacy (Ünlü Ince et al., 2013) using vocabulary matching the patients' capacities is warranted. Also, interventions aiming at balancing internal and external locus of control might help immigrant groups, especially Turkish patients, to gain control of the difficulties they may face (Baarnhielm and Ekblad, 2000;

Fassaert et al., 2009; Reich et al., 2015; Siller et al., 2017). However, most of these facilitators still need to be properly examined in prospective, controlled, adequately powered studies.

In summary, practitioners need to assess and explore (with their patients) the patients' particular situation and needs aiming at identifying the treatment approach and therapeutic interventions that best match each individual patient. Also, considering contextual factors and being sensitive to the specific needs of more vulnerable or resilient subgroups due to the intersections between dimensions of diversity (e.g., older women, second generation, younger, Moroccan men) is recommended to tailor mental care. To this purpose, clinicians are advised to use available assessment instruments, which can be specifically designed for these groups, such as the Dutch Diagnostic Interview for Turkish women (Borra, 2005), or for broader communities, such as the DSM-5 Cultural Formulation Interview (APA, 2013), which has shown a good acceptability among clinicians and patients across different countries (Lewis-Fernandez et al., 2017).

Concerning the facilitators of treatment and implications for clinical practice, a warning statement is warranted. The purpose of this review was to bundle and evaluate existing research findings and to translate them to guidelines that could improve the therapeutic interaction with Turkish and Moroccan immigrant groups. These guidelines should not be considered a 'cookbook', promoting stereotyping. Across the studies, it became clear that Turkish and Moroccan immigrants are different, but also similar to natives on a variety of aspects. There were also important between-, and within-group, and contextual (e.g., country, setting) differences.

#### 4.4. Strengths

To our knowledge, it is the first review that addresses the mental health status concerning depression in large (Turkish and Moroccan) immigrant populations in Europe, with attention for diversity factors that point towards more vulnerable or resilient subgroups within these populations. Even though this review examined the mental health status of two immigrant groups, we excluded studies analyzing Turkish and Moroccan individuals together, which is an understandable practice to increase statistical power, but present misleading results that assume that both groups behave similarly. Due to our method, we could compare between these groups with similar migration history and make their uniqueness clear. Additionally, we highlighted the within-group characteristics whenever intersectionality was present (or analyzed and reported in the studies). Furthermore, the literature was systematically reviewed and the methodological quality of all included papers was assessed with a standardized checklist of predefined quality criteria by the authors.

#### 4.5. Limitations

This review also has some limitations. First, our review aimed to include only articles of known relevance to Turkish and Moroccan immigrant populations in Europe with depression or depressive symptoms. Thus, studies on obstacles and facilitators for therapeutic success for other psychiatric conditions and in other immigrant groups were not considered. Second, the number of retrieved studies examining Moroccan samples was worryingly low, which might be due to the absence of studies from e.g., France or Italy in this review, which are countries with a large Moroccan immigrant population. Despite the open-language search strategy, no papers from these countries were found, which limits the generalizability of the results that might be drawn on a European level, especially concerning Moroccan immigrants. It is possible that the research conducted in countries such as France or Italy did not reach the mined databases and that a future review should target the grey literature to overcome this problem. Third, the results of Turkish immigrants were mostly based on evidence from poorly educated, first-generation Turkish women and older

Turkish immigrants in Germany, the Netherlands, Austria, and Sweden. Given the fact that the current Turkish population in Europe is far more diverse than the examined samples were (e.g., 30% of young, second-generation Turkish citizens of Amsterdam achieve tertiary education; Cruil, 2016), our findings should be generalized with caution to other subgroups. Research on those less well-covered subgroups would be a welcome addition to the literature body. Additionally, important topics fell out of the scope of the current review, namely bipolar or psychotic symptoms, health-related depression and a throughout discussion on suicide (ideations), which might be relevant for adequate mental health care for Turkish and Moroccan European immigrants with depression.

Furthermore, the comparability of studies was limited. Different instruments were used to assess depression, or establish a psychiatric diagnosis. Only a few studies used cross-culturally valid questionnaires or (culturally-sensitive) structured diagnostic interviews based on diagnostic manuals, such as the ICD-10 or the DSM-IV/-5. Also, some studies based their conclusions on general population samples, whereas others focused on in- or outpatients. Importantly, very few studies examined possible interactions or moderating effects of aspects of diversity to explain their findings, which hindered drawing many conclusions on the intersectional level.

### 5. Conclusions

Turkish and Moroccan immigrants were similar to natives in their symptomatic manifestation of depressive symptoms in all domains, but some symptoms such as irritability and suicidality were more prominent in these minority groups. Also, these immigrant populations more often reported combined mood and somatic symptoms (as well as anxiety in the case of Turkish groups) and higher levels of psychopathology, including higher levels of somatic symptoms. More research on treatment effectiveness for these groups is urgently needed, including effectiveness of pharmacotherapy. There is currently no strong

### Appendix A. Detailed search strategy (Pubmed)

(((((Turk\* OR Morocc\* OR Kurd\* OR Berber\*[Title/Abstract])) AND (Europ\* OR European union OR EU OR Western Europe OR North Europe OR United Kingdom OR England OR Scotland OR UK OR Wales OR British OR Scottish OR Netherlands OR Holland OR Dutch OR Belgi\* OR France OR French OR Spain OR Spanish OR Portug\* OR German\* OR Austria\* OR Switzerland OR Swiss OR Ital\* OR Finland OR Finn OR Denmark OR Danish OR Norw\* OR Swed\*[Title/Abstract])) AND (immigrant OR migrant OR migration[Title/Abstract]) AND (depress\* OR depression OR mood W/1 disorder OR affective W/1 disorder OR depressiv\* OR somatoform W/1 disorder OR psychosomatic OR somati\* OR pain OR depression NOT postpartum) AND (illness representation OR illness belief OR manifestation OR idiom W/2 distress OR prevalence OR risk factor OR determinant OR protective factor OR correlat\* OR resilience OR help-seeking W/2 behavior OR therapeutic W/1 rapport OR acculturation OR treatment OR therapy OR treatment W/2 expectation OR perceived need OR mental W/2 healthcare OR dropout OR no-show OR attrition OR adherence OR quality life OR well being [Title/Abstract])) AND ("1970/01/01"[Date - Publication]: "2017/07/31"[Date - Publication])

### Appendix B. Criteria for the quality assessment of the included studies

Criteria for qualitative studies	Scoring per criteria	Scoring per section (separate scoring for Turkish and Moroccan sample) (1) strong; (2) moderate; (3) weak; (NA) not applicable
<b>1. Selection bias</b>		
a. Representativity of the specific target group sample <sup>a</sup>	1. Very likely (randomly selected) 2. Somewhat likely (referred from a source e.g. clinic in a systematic manner) 3. Not likely (self-referred) 4. Cannot tell	Sum of all items 1.Strong: 5– 6 2. Moderate: 7–12 3. Weak: 13+
b. Response rate <sup>a</sup>	1. 80–100% response 2. 60– 79% response 3. less than 60% response 4.Cannot tell	
c. Both male and female participants <sup>b</sup>	1. (Fairly) equal proportion of men and women (50%, + –20%) 2. Greatly uneven proportion of men and women 3. Only men or women	
d. Detailed description of the sample <sup>b</sup>	1. Description of basic elements en 2 of more socio-demographic, socio-economic indicators	

evidence of the effectiveness of the examined therapeutic interventions for the treatment for depression in Turkish immigrants, whereas no intervention has been examined in Moroccan immigrants. The most salient obstacles for therapeutic success included the high levels of psychological symptoms at baseline, facing social hardship, receiving lower quality of treatment, and patients’ negative attitudes towards psychotherapy, and high external locus of control, especially among those more oriented towards their original culture. Factors facilitating therapeutic success included the adaptation of treatments to patients’ illness beliefs, their cultural and individual expectations, and to the difficulties in their social situation. However, most of these factors still need to be properly investigated.

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### Contributors

G.A.S conceived the study, performed the literature search, drafted the manuscript and incorporated input from the rest of the co-authors in the final version of the manuscript. M.H.J.B and J.W.K conceived and coordinated the study, edited draft versions of the paper, and provided critical comments on the manuscript. C.B provided critical comments on the manuscript and contributed in terms of text and tables. All authors have read and approved the final version of the manuscript.

### Conflict of interest

None.

	2. Description of basic elements + one extra socio-demographic, socio-economic indicator	
	3. Description of only basic elements (gender, age, ethnicity) or no description	
e. Inclusion/ exclusion criteria clearly stated	1. Yes (both inclusion and exclusion criteria are stated) 2. Partially (only inclusion or exclusion criteria are stated) 3. No	
<b>2. Study design</b>		
a. Type of design <sup>a</sup> (control group?)	1. Randomized controlled trial (RCT) 1. Controlled clinical trial (Cct) 2. Cohort analytic (two group pre + post) 2. Case-control intervention study/ between-groups cross-sectional 2. Cohort (one group pre + post (before and after)) 2. Interrupted time series 3. Single-subject cross-sectional 3. Other 3. Cannot tell	1. Strong: $a = 1$ with $b$ or $c = 1$ or $2$ (then they are seen as Cct) 2. Moderate: $a = 2$ 3. Weak: $a = 3$
b. Randomization method described (only for RCT) <sup>a</sup>	1. Yes 2. No NA. Not applicable	
c. Randomization method appropriate (only for RCT) <sup>a</sup>	1. Yes 2. No NA. Not applicable/ cannot tell	
<b>3. Confounders</b>		
a. <u>Interventions</u> : Important differences between groups at baseline (ethnicity, sex, marital status, age, SES, education, etc.) <sup>a</sup> <u>Cross-sectional study</u> : Possible confounders responsible for the associations (mentioned by the authors)	1. Yes 2. No 3. Cannot tell	1. Strong: $a = 1$ or $2$ en $b = 1$ 2. Moderate: $a = 1$ or $2$ and $b = 2$ 3. Weak: $a = 1$ and $b = 3$ or $4$ , $a = 3$
b. Percentage confounders /difference that were controlled for (i.e. stratification, matching, as covariates in analyses) <sup>a</sup>	1. 80–100% (most) / Not applicable (No important differences) 2. 60–79% (some) 3. Less than 60% (few or none) 4. Cannot Tell	
<b>4. Blinding (RCT'S, controlled clinical trials)</b>		
a. Assessors were aware of the intervention <sup>a</sup>	1. No 2. Yes 3. Cannot tell NA. Not applicable	1. Strong: $a = 1$ and $b = 1$ 2. Moderate: $a = 2/3$ and $b = 1$ $a = 1$ and $b = 2/3$ 3. Weak: $a = 2$ and $b = 2$ $a = 3$ and $b$ is $3$ NA. data was self-reported or collected by surveys, questionnaires or interviews
b. Participants were aware of the intervention <sup>a</sup>	1. No 2. Yes 3. Cannot tell NA. Not applicable	
<b>5. Data collection methods</b>		
a. Valid (assess construct accurately) instruments for <u>the specific target group (T/M)</u> <sup>a</sup>	1. Yes, totally (all of the relevant instruments, validated in T/M migrant samples) 2. Yes, partially (not all the relevant instruments used are valid, or validated in other migrant samples, or provided back-translated instruments) 3. No 4. Cannot tell Read relevant as needed for our purpose (depression instrument and other related instruments)	1. Strong: $a = 1$ and $b = 1$ 2. Moderate: $a = 1$ and $b = 2, 3$ or $4$ $a = 2$ and $b = 1$ or $2$ $a = 3$ or $4$ and $b = 1$ 3. Weak: $a = 2$ and $b = 3$ or $4$ $a = 3$ or $4$ and $b = 2, 3$ or $4$
b. Reliable (internally consistent) instruments for the specific target group (T/M) <sup>a</sup>	1. Yes, totally (all of the relevant instruments) 2. Yes, partially (not all the relevant instruments used are reliable) 3. No (as indicated by Cronbach alpha in the current study) 4. Cannot tell (no Cronbach alpha of the current study reported) Read relevant as needed for our purpose (depression instrument and other related instruments)	
<b>6. Withdrawal and drop-outs (interventions and longitudinal studies)</b>		
a. Report of numbers and reasons of drop-out per group <sup>a</sup>	1. Yes (both numbers and reasons per group) 2. No 3. Cannot tell NA. Not Applicable (i.e. one time surveys or interviews)	1. Strong: $a = 1$ and $b = 1$ 2. Moderate: $a = 1$ and $b = 2$ 3. Weak: $a = 2, 3$ ; $a = 1$ and $b = 3$ NA. Not Applicable
b. Percentage of people completing the study or included in the final analysis per group (rate lowest percentage) <sup>a</sup>	1. 80–100% 2. 60–79% 3. less than 60% 4. Cannot tell NA. Not Applicable (i.e. retrospective case-control)	
<b>7. Intervention integrity</b>		
a. Percentage of participants receiving the complete intervention (- experimental completers of initial sample without follow-up) <sup>a</sup>	1. 80–100% 2. 60–79% 3. less than 60% 4. Cannot tell NA. Not Applicable (no intervention study)	1. Strong: $a = 1$ and $b = 1$ and $c = 1$ 2. Moderate: $a = 1$ and $b = 2$ and $c = 1$ $a = 2$ and $b = 1$ or $c = 1$ $a = 2$ and $b = 2$ and $c = 1$ 3. Weak: $a = 3$ and $b = 1$ and $c = 1$ $a = 2$ and $b = 2/3$ and $c = 2/3$ $a = 3 / 4$ and $b = 2/3$ or $c = 2/3$ Sum of all items
b. Consistency of intervention <sup>a</sup>	1. Yes (a method to measure if same intervention was provided to all participants is described) 2. No 3. Cannot tell NA. Not applicable	
c. Robust intervention (contamination or co-intervention unlikely) <sup>a</sup>		

	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Cannot tell</li> <li>NA. Not applicable</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: 3</li> <li>2. Moderate: 4–5</li> <li>3. Weak: 6+</li> <li>NA. Not Applicable</li> </ol>
<b>8. Analyses</b>		
a. Sample size large enough to detect an effect of 5% or more in or between the groups <sup>b</sup>	<ol style="list-style-type: none"> <li>1. Yes (50 per group)</li> <li>2. Not likely/partially</li> <li>3. No</li> </ol>	Sum of all items (excluding c) <ol style="list-style-type: none"> <li>1. Strong: 5–7</li> <li>2. Moderate: 8–10</li> <li>3. Weak: 11+</li> </ol>
b. A priori sample size calculation described <sup>b</sup>	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol>	
c. Unit of allocation (only RCT's – unit randomized to the interventions, mostly individuals) <sup>a</sup>	<ol style="list-style-type: none"> <li>1. community</li> <li>2. organization/institution</li> <li>3. practice/office</li> <li>4. individual</li> <li>NA. Not applicable (not an RCT)</li> </ol>	
d. Appropriate correspondence between research question (s), study design and statistical methods (i.e. intention to threat is appropriate) <sup>a,b</sup>	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. Partially (not all analyses)</li> <li>3. No</li> </ol>	
e. Effect sizes reported <sup>b</sup>	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. Partially (not for all analyses)</li> <li>2. No</li> </ol>	
f. Use of imputation methods rather than actual data <sup>b</sup>	<ol style="list-style-type: none"> <li>1. No missings, only completers (described)</li> <li>2. Yes (imputation method described)</li> <li>3. Yes, incomplete information (missings are mentioned, but not a method to handle them)</li> <li>4. Cannot tell (nothing described about missings)</li> </ol>	
<b>9. Global rating</b>		<ol style="list-style-type: none"> <li>1. STRONG (no WEAK ratings for any section)</li> <li>2. MODERATE (one WEAK rating in one of the sections)</li> <li>3. WEAK (two or more WEAK ratings across the sections)</li> </ol>
<b>Criteria for qualitative studies</b>	<b>Quality indicators (possible, not extensive, features for consideration)<sup>d,e</sup></b>	<b>Scoring</b>
1. Research question clearly defined <sup>c</sup>	<ol style="list-style-type: none"> <li>a. Statement of why the research was done</li> <li>b. Clear formulation of the specific question that is addressed</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: Complete/ detailed/ clear information (a and b)</li> <li>2. Moderate: Incomplete/ vague information (a or b)</li> <li>3. Weak: Cannot tell/ Not described</li> </ol>
2. Appropriate use of a qualitative approach <sup>d</sup>	<ol style="list-style-type: none"> <li>a. The objective of the research was to explore, interpret, or obtain a deeper understanding of a particular clinical issue</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: Yes</li> <li>2. Moderate: Partially yes</li> <li>3. Weak: No</li> </ol>
3. Context of research setting is clearly described <sup>c,d</sup>	<ol style="list-style-type: none"> <li>a. The (historical/social/organizational) setting in which the research is done is clearly described</li> <li>b. The researchers' perspective, vision, cultural background are described</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: Complete/ detailed/ clear information (a and b)</li> <li>2. Moderate: Incomplete information (a or b)</li> <li>3. Weak: Vague information/ Cannot tell/ Not described</li> </ol>
4. Sampling strategy clearly described and justified <sup>c,d</sup>	<ol style="list-style-type: none"> <li>a. Description of population of interest</li> <li>b. Rationale for basis of target sample</li> <li>c. Description of methods of access and approach</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: Information allows straight-forward replicability</li> <li>2. Moderate: Incomplete information</li> <li>3. Weak: Vague information/ Cannot tell/ Not described</li> </ol>
5. Sampling strategy ensured generalizability <sup>c</sup>	<ol style="list-style-type: none"> <li>a. Profile of achieved sample allows making conclusions that concerns the whole population</li> <li>b. Maximizing inclusion (e.g. language matching, specialized recruitment)</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: Yes</li> <li>2. Moderate: Moderately</li> <li>3. Weak: No</li> </ol>
6. Data-collection procedure was clearly described <sup>c,d</sup>	<ol style="list-style-type: none"> <li>a. Discussion of who conducted the data collection.</li> <li>b. Discussion of conventions for data-collection</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: Information allows straight-forward replicability</li> <li>2. Moderate: Incomplete information</li> <li>3. Weak: Vague information/ Cannot tell/ Not described</li> </ol>
7. Data analysis procedure clearly described and justified <sup>c</sup>	<ol style="list-style-type: none"> <li>a. Description of the form of original data (e.g. use of verbatim transcripts, etc)</li> <li>b. The analysis related to the original research question</li> <li>b. The method to identify themes and concepts was clear and justified</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: Information allows straight-forward replicability</li> <li>2. Moderate: Incomplete information</li> <li>3. Weak: Vague information/ Cannot tell/ Not described</li> </ol>
8. Evidence (citations) was used in the paper and available for independent analysis <sup>c,d</sup>	<ol style="list-style-type: none"> <li>a. The authors cite actual data.</li> <li>b. The cited data is appropriate.</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: 80–100% (in most of the statements)</li> <li>2. Moderate: 60–79% (some)</li> <li>3. Weak: Less than 60% (few or none)</li> </ol>
9. Reliability of analysis <sup>c,d</sup>	<ol style="list-style-type: none"> <li>a. The data analysis was done by many researchers.</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: &gt; 2 researchers</li> <li>2. Moderate: 2 researchers</li> <li>3. Weak: One researcher/ Cannot tell/ Not described</li> </ol>
10. Diverse observations were taken into account <sup>c</sup>	<ol style="list-style-type: none"> <li>a. There was evidence of seeking out observations that might have contradicted/ modified the analysis</li> <li>b. Evidence of attention to outliers, exceptions or negative cases.</li> <li>c. Identification of patterns of associations with divergent position.</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong: Yes, many times (&gt; 4)</li> <li>2. Moderate: Yes, sometimes (3–4)</li> <li>3. Weak: Few or none (1–2)</li> </ol>

11. Link between data, interpretations and conclusions is logic, comprehensible <sup>c,d</sup>	a. Interpretation is relatively untainted with personal perspective b. The interpretation is a comprehensible result of the data analysis. c. The interpretation is reasonably coherent with what is already known.	1. Strong: 80–100% conclusions are comprehensible (most) 2. Moderate: 60–79% (some) 3. Weak: Less than 60% (few or none)
Global rating <sup>a</sup>		1. STRONG (no WEAK ratings for any section) 2. MODERATE (one WEAK rating in one of the sections) 3. WEAK (two or more WEAK ratings across the sections)

<sup>a</sup> Tool of the Effective Public Health Practice Project.

<sup>b</sup> Added criteria relevant for current purpose.

<sup>c</sup> MJ Qualitative research checklist.

<sup>d</sup> Greenhalgh & Taylor, 1997.

<sup>e</sup> Quality in Qualitative Evaluation Framework.

### Appendix C. Characteristics of the included studies (n = 28) and assessed study quality

Author (year), Study country	Design; population type	Study sample (n, ethnicity, % female, age (SD/range))	Further sample characteristics (%)	Instrument to measure depression	Other instruments	Study quality rating T/M
<b>Symptom manifestation – Turkish immigrants</b>						
Akbiyik et al. (-2008) Germany, Turkey	Between- groups, cross-sectional study, clinical sample, outpatients	105, 44.9% - 53 TG, 64%, 49.4 ± 8.4 - 52 nT, 73%, 44.7 ± 9.2	Total work years: 20.0 ± 10.0; (TG); 12.3 ± 12.5 (nT) Income: moderate 26% (TG), 82% (nT); low 54% (TG), 13% (nT) Marital status: married 81% (TG), 78% (nT) Generation: first 100% (TG)	MINI SCL-90-R BDI	MANSA	2 / -
Akbiyik et al. (-2009) Germany, Turkey	Between- group, cross-sectional study, clinical sample, outpatients	105, 44.9% - 53 TG, 64%, 49.4 ± 8.4 - 52 nT, 73%, 44.7 ± 9.2	Total work years: 20.0 ± 10.0 (TG); 12.3 ± 12.5 (nT) Income: moderate 26% (TG), 82% (nT); low 54% (TG), 13% (nT) Marital status: married 81% (TG), 78% (nT) Generation: first 100% (TG)	MINI SCL-90-R BDI	MANSA	3 / -
Bäärnhielm and Ekblad (2000)* Sweden	Grounded- theory qualitative study, clinical sample, outpatients	10 TS, 100% , 35 (31-48)  Ethnic affiliation: Turkish 80%, Kurdish 10%, Assyrian 10%.	Education: 6.5 yr (0–12) SES: low 100% Occupation: employed 30% Marital status: married 70% Generation: first 100% Nationality: Swedish 50% Duration of stay: 19yr (4-29) Language skills: good –fluent 80%	SCID-I	Expressions of distress	2 / -
Beutel et al. (2016) Germany	Cross-sectional, general population	14,943, -, (35-74), - 11418 nD, 49.3%, 55.5 ± 11.1 - 141 TG, 50.9%, 52.6 ± 10.6 - 295 Polish-German, 49.4%, 54.7 ± 11.1 - 282 Western countries migrants - 386 Middle and Southern European migrants.	SES (3 lowest-27): 12.0% (TG), 14.0% (PG), 12.0% (nG). Occupation: employed 64.5% (TG); 63.3% (PG), 59.6% (nG) In retirement: 21.1% (TG); 30.2% (PG), 32.7% (nG) Net income: 750-1499€ 15.3% (TG), 8.2% (PG), 9.7% (nG), 1500-2999 44.7% (TG), 33.8% (PG), 38.3% (nG), Marital status: married or relationship 84.2% (TG); 79.6% (PG), 81.0% (nG) Generation: first 100% Duration of residence: 31.4 ± 8.4 (TG), 28.2 ( ± 12.9; PG)	PHQ-8	GAD-7 PHQ-panic module Mini-Spin DS-14	3 / -
Borra (2011) The Netherlands	Qualitative study, clinical sample, outpatients	20 TD, 100%, (20-50)  Region: Anatolian 100%	Education: low educated 75% Occupation: working 15% Marital status: married 90% Generation: first 100% Host language proficiency: non-proficient 90% Duration of stay: > 10 years 90%	DSM-IV diagnosis	Idioms of distress	2 / -
Deisenhammer et al. (2012) Austria	Cross-sectional study, clinical sample, out- and inpatients	136, 100% - 40 TA, 44.3 (20–67, ± 9.8 - 41 nA, 47.5 (20–73, ± 12.4) - 55 nT, 40.8 (18–76, ± 13.1)	Educational level: <8 years in school 82% (TA), 12% (nA), 22% (nT) Marital status: married, 32% (TA), 75% (nA), 64% (nT) Occupation: employed 30% (TA), 20% (nA), 18% (nT) Housewives 10% (TA), 12% (nA), 51% (nT)	ICD-10 diagnosis (F31.3, F31.4, F32 or F33) MADRS BDI	BSI List of physical symptoms.	3 / -
Heredia Montesinos et al.	Cross-sectional study, clinical sample, outpatients	63 TG, 100%, 48.42 ( ± 9.1, 28-72)	Education: primary school or less 46.1%, university 14.3%	ICD-10 diagnoses (F32, F33, and		3/-



(2012) Germany			Income: no own income 14.3%, own income 25.4%, social benefits 36.5% Marital status: married 28.6% Generation: first 100% Time of migration: as adults 89%, as children 11%	F34) BDI-II	Stigma Scale SOMS- II SCL- 90- R (G SI, PSDI, PST)		
Mewes et al. (2010)* Germany	Cross-sectional, general population sample	134, - - 42 TG, 31%, 30.9 ± 10.5 - 43 East European-German (EeG), 67%, 51.7 ± 21.5 - 49 Soviet Union-German (SUG), 53%, 44.3 ± 19.6 471 TG, 46.3%, 39.7 ± 11.5	Occupation: employed 64% (TG), 49% (EeG), 37% (SUG) Marital status: in relationship 60% (TG), 69% (EeG), 42% (SUG)	PHQ-9	PHQ-15, PHQ-general anxiety	3 / -	
Morawa and Erim (2014) Germany	Cross-sectional, clinical sample, out- and inpatients with psychosomatic complaints	471 TG, 46.3%, 39.7 ± 11.5	Education: none 3.2, vocational school 39.1%, high 9.1% Occupation: employed 43.5%, jobless 11.0% Income: <500€ 14.9%, 1000-2000€ 29.5% Marital status: married 70.7%, Duration of residence: 24.3 (11.1) Generation: first 77.1% Age of immigration: 18.9 (8.0) Migration motivation: marriage 39.1%, family reunion 22.5% Language proficiency: moderate 38.0%	BDI	FRACC	2 / -	
Sariaslan et al. (2014) Germany	Cross-sectional, general practice sample	418, 47.1% - 254 TG, 42.9%, 38.37 ± 12.28 - 164 nG, 53.7%, 54.30 ± 18.34	Education: 10 grades high school 26.0% (TG), 65.2% (nG); high school 41.7% (TG); 9.8% (nG) Occupation: non-active 15.7% (TG); 4.3% (nG) Income: 1000-2000 26.0% (TG), 35.4% (nG) Marital status: married 74.8% (TG), 53.7% (nG) Duration of residence: 25.84 ± 10.93 (TG) Generation: first 65.7% (TG)	BDI	SOMS	1 / -	
<b>Symptom manifestation – Turkish and Moroccan immigrants</b>							
Schrier et al. (2010) The Netherlands	Cross-sectional study, community sample, Amsterdam, random stratified sample	812, - - 213 TD, 60.1%, 47.3 ± 14.2 - 191 MD, 47.1%, 49.6 ± 14.4 - 321 nD, 58.3%, 54.1 ± 14.6 - 87 Surinamese-Dutch (SD), 71.3%, 52.3 ± 15.2	Education: none or primary only 60% (TD), 20% (MD), 17% (nD) Family income: low 80% (TD), 31% (MD), 51 % (nD, SD) Generation: first >90% Preference native language: >68.9%	CIDI 2.1 (section E) SCL-90-R (depression)	WHODAS II	2 / 2	
Smits et al. (2005) The Netherlands	Validation study, qualitative methods, community sample, Amsterdam	44, 50%, (55-74) - 22 TD, 50% - 22 MD, 50%		CIDI 2.1 CES-D	Semi-structured interview on the experience of migration, ageing and symptoms.	2 / 2	
Spijker et al. (2004) The Netherlands	Cross-sectional validation study, non-institutionalized community sample, Amsterdam	933, -, (55-74) - 330 TD, Mage women 63.7 - 299 MD, Mage women 65.2 - 304 nD, Mage women 65.7	Education: none or primary 92.7–98.8% (TD), 97.6–100% (MD), 21.5–33.8% (nD) Income: On/below poverty level: 41.6–43.9% (TD), 50.4–72.6 (MD), 11.9–19.5 (nD)	CES-D	SF-36 (general mental health subscale)	2 / 2	
<b>Obstacles and facilitators – Turkish immigrants</b>							
Callies et al. (2007) Germany	Cross-sectional study, community sample, Berlin	303, 19.29 (17–25, ± 1.8) 139 TG, 58.3%, 19.44 ( ± 1.7) 63 Turkish-oriented, 76 German-oriented 164 nG, 58.5%, 19.7 ( ± 1.9)	Marital status: married 15.1% (TG), 0% (nG), single 82.7% (TG), 98.2% (nG)	SCID-I SCL – 14 (depression subscale)	SCL – 14 (somatization, phobic anxiety subscales) Acculturation Questionnaire for Turkish migrants FAKKS-T FEP	3 / -	
Möske et al. (2008) Germany	Longitudinal, prospective study, clinical sample, inpatients	852, - - 99 TG, 45%, 39 ± 10 - 753 nG, 50%, 42 ± 10	Education: secondary 54% (nG), 60% (TG) Occupation: unemployed 37% (TG), 26% (nG) Marital status: single 27% (TG), 34% (nG)	ICD-diagnose  SCL – 14 (depression)	SCL-14 SF-8 HSF HoNOS-D GAF	3 / -  3 / -	

Möske et al. (2011) Germany	Longitudinal, prospective study, clinical sample, inpatients	25066, - 88 TG of 1118 with migrant background (MB), 74.4%, 46.4 ± 10.2 23,763 nG, 71.6%, 47 ± 9.62	Education: secondary 22% (nG), 23% (MB) Occupation: unemployed 10% (nG), 15% (MB) Marital status: In relationship 17% (nG), 18% (MB)		SCL-14 (somatization, phobic anxiety) SF-8 HSF	
Nickel et al. (2006a) Germany	Longitudinal, prospective (pre-post) study, clinical sample, inpatients	195 TG, 77.4%, 44.7 ± 9.2; women 47.8 ± 7.5, men 51.7 ± 8.2	Education: none women 32.5%, men 27.3%, Elementary/secondary school women 67.5%, men 70.5% Marital status: married or living together women 86.8%, men 79.5% Duration of stay: women 22.1 ( ± 6.2), men 25.7 ( ± 8.1)	DIPS SCL-90-R (depression)	SCID-II GSI	3 / -
Nickel et al. (2006b) Germany	RCT, clinical sample, inpatients with chronic somatoform and depressive disorders	128 TG,- - 64 Bioenergetic group (BEG), 68.8%, 48.3 ± 7.1 - 64 control group 330 (CG), 71.9%, 49.4 ± 7.5	Occupation: laborer 76.6% (BEG), 71.9% (CG) Marital status: living in partnership 82.8% (BEG), 85.9% (CG) Years in Central Europe: 24.5 ± 8.1 (BEG); 23.0 ± 7.5 (CG) Generation: first 100% (BEG), 100% (CG)	SCL-90-R (depression)	SCL-90-R (all subscales, GSI) STAXI	3 / -
Reich et al. (2015) Germany	Cross-sectional, clinical sample, inpatients	100, (18-61), - 50 TG, 66%, 46.9 ± 9.1 - 50 nG, 62%, 45.9 ± 8.9	Education: 7.4 ( ± 3.1) (TG), 11.1 ( ± 1.7) (nG) Employment: 34% (TG); 70% (nG) Duration of stay: ≈ 31yr. Generation: first 84% Host language proficiency: poor 40%, good 26% Residence status: permanent residence permit 68%	PHQ-9	PHQ-15 Brief IPQ IPQ-R KKG FMP	2 / -
Renner and Berry (2011) Austria	RCT, clinical sample, community sample with recurrent depression	67; 104, 100% women, Turkish-Austrian, 42.7 (28-61, ± 8.7) 21 Self-help group (T1), 15 (T2), 14 (T3) 23 CGT group (T1), 11 (T2), 10 (T3) 23 wait-list control (T1), 12 (T2), 7 (T3)	Education: 5.9 ± 3.1 Duration of stay: 18.6 ± 8.2 Generation: first 93.9%	CES-D ICD-10 diagnoses (F33)	BSI PHQ CAPS (Life event checklist) HTQ	3 / -
Schouler-Ocak et al. (2010) Germany	Cross-sectional, clinical sample, outpatients	2024; 981 (complete accounts), 55.6%, 47.7 ± 17.2 - 8.3% TG ( + - 82) 67.5% nG ( + - 662) - 14.0% Eastern European- German (EEG) ( + - 137)	(complete sample) Education: > high school, 55.2% Occupation: working 20.9% Marital status: single/separated 46.7% Treatment duration in the past: 7.5, ± 8.6	ICD-10 diagnose (F0-E9 codes)	Communication problems interview	3 / -
Siller et al. (2017) Germany	Qualitative study, community/convenience sample	43 TD, 65.2%, 42.7 ± 8.7 (28–61)	Education: years of school attendance 6 ± 3.5 Marital status: married 87.3% Generation: first 94% Duration of stay: 18.6 ± 8.2	ICD-10 diagnose (F.33 codes)		2 / -
Ünlü et al. (2013) The Netherlands	RCT, clinical sample, outpatients	96 TD, 62%, 35.2 ± 9.3 49 self-guided, problem-solving group (T1), 26 (T2), 13 (T3) 47 wait-list control group (T1), 30 (T2), 24 (T3)	Education: low 27%, middle 41% Marital status: long term relationship 64% Generation: first 95% Language: Turkish 89% Employment: yes 52%	CES-D BDI-II MINI (section C)	HADS SCL-90 (somatization scale) LAS EQ-3D	3 / -
Zollman et al. (-2016) Germany	Between-group, pre-post prospective study In- and outpatient sample	128,165, (55–74), 50% women - 2613 TG, 50.6%, 45.6 - 120748 nG, 64.7%, 48.2 - 4804 other migrants (OM), 64.7%, 48.5	Education: 10 <sup>+</sup> high school 77.2% (TG), 72.8% (nG), 70.5% (OM) Occupational diploma: yes 38.0% (TG); 87.6% (nG); 64.1% (OM) Marital status: married, in relationship 68.7% (TG), 53.8% (nG), 55.6% (OM)	ICD-10 diagnoses (codes F1-F9)	Sociodemographic information	3 / -
<b>Obstacles and facilitators – Turkish and Moroccan immigrants</b>						
Fassaert et al. (-2009) The Netherlands	Cross-sectional study, community sample	626, - 170 TD, 55.9%, 46.3 (20–82, ± 14.1) 146 MD, 54.2%, 48.2 (19–91, ± 14.6) - 310 nD, 55.9%, 54.2 (20–92, ± 14.6)	Education: > elementary school 48.2% (TD), 45.9% (MD), 79.7% (nD) Insurance: public 80.6% (TD), 91.8% (MD), 62.9% (nD)	CIDI 2.1 (sections D, E) SCL-90-R (depression)	PCNQ SCL-90-R (agoraphobia, anxiety, somatization)	2 / 2
Fassaert et al. (-2010a)	Cross-sectional, general practice sample	147,109, not stated, 51.8 ± 18.5	Disposable income (in units of 1000€): 16.3 ± 6.0 (TD), 14.8 ± 5.1 (MD), 20.5	ICPC diagnosis (P03, P76)		2 / 2

The Netherlands		- 4884 TD; 72.5%, 38.7 ± 12.6, (nD) ± 11.3 - 3458 MD; 67.1%, 35.7 ± 9.3 - 131,690 nD, 69.1%, 53.2 ± 18.6	Marital status: Married, living together 64.5% (TD), 58.9% (MD) 41.6% (nD)			
Fassaert et al. (-2010b)	Cross-sectional, clinical sample, in-outpatients	17,270 episodes of treatment; (18-65) - 947 TD, 68.7%, 35.4 ± 8.3 - 834 MD, 58.4%, 35.3 ± 8.7 - 12,824 nD, 65.4%, 40.6 ± 11.7, - Dutch Antillean - Surinamese - Other non-western - Other western	Urbanization: very high 59.9% (TD), 71.6% (MD), 26.0% (nD) Marital status: married 72.1% (TD), 66.3% (MD), 45.4% (nD)	DSM-IV diagnosis (codes 296.21–296.24 and 296.31–296.34)		2 / 2
Nap et al. (2015)	Longitudinal, naturalistic, cross-sectional, clinical sample, outpatients	737, - - 197 TD, 60.4%, median = 37 - 328 MD, 48.8%, median = 35 - 212 SD, 70.6%, median = 40	Generation: first 77% (all groups)	BSI (depression)	BSI (somatization, anxiety, depression) LAS EQ-5D Patient Request Form (PBV) Dutch shortened version	2 / 2

Instruments: BDI = Beck Depression Inventory; Brief IPQ = Brief Illness Perception Questionnaire; BSI = Bradford Somatic Inventory; CAPS = Clinician Administered PTSD Scale; CES-D = Center for Epidemiologic Studies Depression Scale; CIDI 2.1 = Composite International Diagnostic Interview 2.1; DIPS = Diagnostisches Interview bei psychischen Störungen DS-14 = Type D Scale-14; DSM-IV = Diagnostic and Statistical Manual of Mental Disorders-IV; EQ-5/3D = EuroQol five/three dimensions questionnaire; FAKKS-T = Der Fragebogen zur Akkulturation für türkische Migranten; FEP = Fragebogen zu Einstellungen gegenüber der Inanspruchnahme psychotherapeutischer Hilfe; FMP = Psychotherapeutic Treatment Expectations and Openness to Psychotherapy Scales; FRACC = Frankfurt Acculturation Scale; GAF = Global Assessment Scale of Functioning; GSI = Global Severity Index; HADS = Hospital Anxiety and Depression Scale; HoNOS-D = Health of the Nation Outcome Scale; HSF = Hamburg Self-care Questionnaire; HTQ = Harvard Trauma Questionnaire; ICD-10 = International Statistical Classification of Diseases and Related Health Problems -10; ICPC = International Classification of Primary Care; IPQ-R = Illness Perception Questionnaire- Revised; KKG = Locus of Control Inventory for Illness and Health; LAS = Lowlands Acculturation Scale; MADRS = Montgomery-Asberg; MANSA = Manchester Short Assessment of Quality of Life; MINI = Mini International Neuro-psychiatric Interview; Mini-Spin = Mini-Social Phobia Inventory; PHQ-8/9/15 = Patient Health Questionnaire-8/9/15; PNCQ = Perceived Need for Care Questionnaire; PSDI = Positive Symptom Distress Index; PST = Positive Symptom Total; SCID-I = Structured Clinical Interview for DSM-IV (SCID-I); SCL-14/ 90-R = Symptom Checklist-14/90-Revised; SF-36, 8 = Short Form 36, 8 Health Survey Questionnaire; SOMS / II = Screening for Somatoforme Störungen / II; STAXI = State-Trait Anger Expression Inventory; WHODAS II = World Health Organization Disability Assessment Schedule II.

Note.  
\* Study also included in the treatment section. Abbreviations: quality rating T/M = quality rating of Turkish sample and/or Moroccan sample; Study quality rating 1 = strong quality (SQ), 2 = moderate quality (MQ), 3 = weak quality (WQ); SES = socioeconomic status; RCT = Randomized Controlled trial; nT = native Turkish, nD = native Dutch, TD = Turkish-Dutch; MD = Moroccan-Dutch, nB = native Belgian; TB = Turkish-Belgian; MB = Moroccan-Belgian; nG = native German; TG = Turkish-German; nA = native Austrian, TA = Turkish-Austrian; TS = Turkish-Swedish.

**Appendix D. Detailed quality ratings of the included studies following rules in Appendix A**

Quantitative study, year	Quality Criteria					
	Sample (T/M)	Sum Selection bias	1. Selection bias	2. Study design	3. Confounders	4. Blinding
Akbıyık et al. (2008)	T	8	2	2	1	na
Akbıyık et al. (2009)	T	11	2	2	3	na
Beutel et al. (2016)	T	6	1	2	3	na
Callies et al. (2007)	T	13	3	2	3	na
Deisenhammer et al. (2012)	T	13	3	2	2	na
Fassaert et al. (2009)	T	7	2	2	1	na
Fassaert et al. (2009)	M	7	2	2	1	na
Fassaert et al. (2010a)	T	11	2	2	1	na
Fassaert et al. (2010a)	M	11	2	2	1	na
Fassaert et al. (2010a)	T	11	2	2	1	na
Fassaert et al. (2010b)	M	11	2	2	1	na
Heredia Montesinos et al. 2012	T	12	2	3	3	na
Mewes et al. (2010)	T	8	2	2	1	na
Morawa and Erim (2014)	T	6	1	3	1	na
Möske et al. (2008)	T	7	2	2	2	na
Möske et al. (2011)	T	7	2	2	2	na
Nap et al. (2015)	T	12	2	2	3	na
Nap et al. 2015	M	12	2	2	3	na
Nickel et al. 2006a	T	6	1	2	3	na
Nickel et al. (2006b)	T	7	2	1	1	3
Reich et al. (2015)	T	10	2	2	1	na
Renner and Berry (2011)	T	12	2	1	1	3
Sariasslan et al., 2014	T	7	2	2	1	na
Schouler-Ocak et al. (2010)	T	8	2	2	3	na
Schrier et al. (2010)	T	8	2	2	2	na

Schrier et al. (2010)	M	8	2	2	2	na
Spijker et al. (2004)	T	7	2	2	3	na
Spijker et al. (2004)	M	7	2	2	3	na
Ünlü Ince et al. (2013)	T	11	2	1	1	3
Zollman (2016)	T	12	2	2	3	na

Quality Criteria

Quantitative study, year	5. Data collection	6. Withdrawals drop-outs	Sum Intervention integrity	7. Intervention integrity	Sum Analyses	8. Analyses	Global quality rating
Akbiyik et al. (2008)	3	na	0	0	10	2	2
Akbiyik et al. (2009)	3	na	0	0	10	2	3
Beutel et al. (2016)	3	na	0	0	7	1	3
Callies et al. (2007)	3	na	0	0	12	3	3
Deisenhammer et al. (2012)	3	na	0	0	12	3	3
Fassaert et al. (2009)	3	na	0	0	7	1	2
Fassaert et al. (2009)	3	na	0	0	7	1	2
Fassaert et al. (2010a)	3	na	0	0	10	2	2
Fassaert et al. (2010a)	3	na	0	0	10	2	2
Fassaert et al. (2010a)	3	na	0	0	7	1	2
Fassaert et al. (2010b)	3	na	0	0	7	1	2
Heredia Montesinos et al. 2012	3	na	0	0	11	3	3
Mewes et al. (2010)	3	na	0	0	12	3	3
Morawa and Erim (2014)	2	na	0	0	8	2	2
Möske et al. (2008)	3	3	10	3	7	1	3
Möske et al. (2011)	3	3	10	3	8	2	3
Nap et al. (2015)	2	na	0	0	10	2	2
Nap et al. 2015	2	na	0	0	10	2	2
Nickel et al. 2006a	3	3	6	3	7	1	3
Nickel et al. (2006b)	2	3	4	2	8	2	3
Reich et al. (2015)	3	na	0	0	8	2	2
Renner and Berry (2011)	3	3	8	3	11	3	3
Sariasslan et al., 2014	2	na	0	0	9	2	1
Schouler-Ocak et al. (2010)	3	na	0	0	11	3	3
Schrier et al. (2010)	3	na	0	0	10	2	2
Schrier et al. (2010)	3	na	0	0	9	2	2
Spijker et al. (2004)	2	na	0	0	9	2	2
Spijker et al. (2004)	2	na	0	0	9	2	2
Ünlü Ince et al. (2013)	2	3	9	3	8	2	3
Zollman (2016)	3	na	0	0	11	3	3

Quality Criteria

Qualitative study, year	Sample (T/M)	1. Clarity of research question	2. Appropriate qualitative approach	3. Description of context of research	4. Sampling strategy	5. Generalizability of results
Baarnhielm et al. (2000)	T	2	1	1	2	3
Borra (2011)	T	1	1	2	2	3
Smits et al. (2005)	T	1	1	3	1	1
Smits et al. (2005)	M	1	1	3	1	1
Siller et al. (2017)	T	1	1	3	2	2

Quality Criteria

Qualitative study, year	6. Clarity of data collection procedure	7. Clarity of data analysis procedure	8. Use of citations	9. Reliability of the analysis	10. Diversity of observations	11. Clarity of data interpretation procedure	Global quality rating
Baarnhielm et al. (2000)	1	1	1	3	2	1	2
Borra (2011)	2	1	2	1	2	1	2
Smits et al. (2005)	1	2	2	3	1	1	2
Smits et al. (2005)	1	2	2	3	1	1	2
Siller et al. (2017)	2	1	2	2	2	1	2

Note. Abbreviations: T = Turkish sample, M = Moroccan sample; Global quality rating 1 = strong quality (SQ), 2 = moderate quality (MQ), 3 = weak quality (WQ).

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