Journal of Psychosomatic Research 80 (2016) 1–10

Contents lists available at ScienceDirect

Journal of Psychosomatic Research

Review

The challenge of diagnosing non-specific, functional, and somatoform disorders: A systematic review of barriers to diagnosis in primary care

Alexandra M. Murray *, Anne Toussaint, Astrid Althaus, Bernd Löwe

Department of Psychosomatic Medicine and Psychotherapy, University Medical Center Hamburg-Eppendorf & University Hospital of Psychosomatic Medicine and Psychotherapy, Schön Clinic Hamburg Eilbek, Germany

ARTICLE INFO

Article history:
Received 7 May 2015
Received in revised form 5 November 2015
Accepted 6 November 2015

Keywords:
Barriers
Diagnosis
Primary care
Recognition
Somatoform disorder
Systematic review
Functional disorder
Medically unexplained symptoms

ABSTRACT

Objective: Despite their prevalence and impact on patients and the health care system, non-specific, functional, and somatoform disorders are underdiagnosed. This problem is especially problematic in primary care if we are moving towards an integrated care model. The objective of the current study was to identify and aggregate potential barriers to the diagnosis in primary care settings.
Methods: Our systematic review methodology followed a pre-published protocol and was registered in PROSPERO (CRD42013002540). We combined qualitative and quantitative data from studies identified in online databases and by hand searching of reference lists. Data were synthesized in a data-driven way using a grounded-theory approach. The level of evidence and assessment of bias for the final included studies was independently conducted.
Results: Data from n = 177 full text publications were independently extracted and combined in a custom database. The final list of included studies was n = 42. From these, a total of n = 379 barriers were identified comprising 77 barrier-level codes, 16 thematic categories and five over-arching themes, i.e., patient-related, primary-care-practitioner related, doctor–patient interactional, situational, and conceptual and operational barriers.
Conclusion: Given the thematic range of the identified barriers, the diagnostic process of non-specific, functional, and somatoform disorders in primary care is highly complex. Individual or practice-level interventions, as well as public awareness initiatives are needed to help address the diagnostic challenges. A multi-factorial understanding of symptoms with a biopsychosocial parallel diagnostic approach should be encouraged. More direct empirical investigations are also needed.

1. Introduction

Primary care practitioners (PCPs) are at the forefront of receiving patients who present with medically unexplained symptoms (MUS), as well as functional or somatoform disorders [1]. Up to two-thirds of symptoms in primary care are 'medically unexplained' [2] and, depending on the criteria used, 16–34% of patients have a diagnosable somatoform disorder [2–5]. Despite the relatively high prevalence, patients with non-specific, functional or somatoform symptoms often remain unrecognised and somatoform disorders in the strict sense have been severely underdiagnosed [6–8]. If we are moving towards a model of integrated care [9], then it is critical that PCPs are adequately prepared to diagnose and manage these patients. The diagnosis of this nosologic category is challenging and requires skills and knowledge to incorporate information from the whole biopsychosocial spectrum. For example, etiopathogenetic models of non-specific, functional, and somatoform complaints suggest that psychosocial, biological, iatrogenic, and sociocultural aspects influence the predisposition towards, as well as the triggering and maintenance of the symptoms [10]. Given their often on-going relationship with patients and their role as being the 'first contact' [11], PCPs are in the perfect position to monitor patients' health behaviour over time and be cognisant of all these potential contributing factors. Diagnostic guidelines recommend, therefore, that PCPs should manage and co-ordinate care of patients with somatoform type complaints [10,12–14].

Somatoform type disorders are not only common but disabling and associated with remarkable impairment [3]. Notwithstanding the impact on patients, the consequences of somatoform type disorders have been shown to cost billions of dollars annually [15] and have significant independent incremental contribution to in- and out-patient costs [16]. Patients are often referred from primary care onto other specialists in a vicious cycle which can be difficult to break [17]. Such resource utilization can preclude appropriate care and further exacerbate patients' complaints. It is important that affected patients are identified early to circumvent such issues. Diagnosis must, therefore, be facilitated.

The terminology, conceptualisation and management of somatoform type disorders appear to be problematic and inconsistent

* Corresponding author at: Department of Psychosomatic Medicine and Psychotherapy, Building O25, University Medical Center Hamburg-Eppendorf, Martinistraße 52, 20246 Hamburg, Germany.
E-mail address: a.murray@uke.de (A.M. Murray).

http://dx.doi.org/10.1016/j.jpsychores.2015.11.002
0022-3999/

between physicians and researchers which complicates research and communication [10,18]. For example, problems with the diagnostic criteria for somatoform disorders according to DSM-IV and ICD-10 included an inherent mind–body dualism; symptoms were required to be "medically unexplained" to be considered relevant for the diagnosis [8]. These categories were rarely used and, for many reasons, PCPs preferred to use functional labels such as irritable bowel syndrome or tension type headaches for specific symptom clusters [8,19]. Furthermore, MUS has been used as a diagnostic category to describe symptoms which cannot be categorised according to a specific disease and also symptoms which are indicative of a mental disorder (such as a somatoform disorder). As such, MUS is sometimes used as a 'working hypothesis' until a formalised diagnosis can be made. Due to these problems, research groups often developed their own ways to assess affected patients, rather than only relying on the strict diagnostic criteria [e.g. 20], which ultimately makes comparison difficult. Although DSM-5 [21] may alleviate some of these difficulties, such as removing the requirement of symptoms being 'medically unexplained', it is unlikely to be able to solve all barriers to diagnosis. Other problems such as the expectations of what is appropriate to be discussed or managed within primary care settings, unclear communication strategies or the nature of the symptoms themselves may contribute to diagnostic difficulties. It is important, therefore, to investigate all possible barriers to diagnosis found in the literature, especially in non-mental health specialist (i.e. primary care) settings if we are to ultimately disentangle some of these issues.

If we consider diagnosis as a gateway to appropriate treatment, then improving the diagnostic process should be a high priority of our field. Before the problems can be solved, however, they must first be identified. To this end, we conducted a systematic review of original studies and systematic reviews to identify and aggregate possible barriers to the diagnosis of non-specific, functional, and somatoform type complaints in primary care according to current medical guidelines [10].

2. Methods

The scope of our review includes "non-specific (i.e. not categorized as belonging to a specific disease), functional, and somatoform bodily complaints" as defined by current medical guidelines [10]. We interpret MUS as, in this case, meaning non-specific. For simplicity, we will use the terms "somatoform type disorders" throughout the review to refer to the concept of non-specific, functional, and somatoform bodily complaints. Although this definition is in accordance with DSM and ICD diagnostic frameworks, our conceptualisation is more broad in order to avoid excluding relevant research (for example regarding MUS).

The review was conducted in accordance with the PRISMA statement and was registered in the international registry of systematic reviews PROSPERO (CRD42013002540) [22]. In addition, the review was conducted according to a previously published protocol that includes a detailed description of the methodology [23]. Developments during the review process resulted in three main deviations from the protocol: (1) our final thematic coding scheme differed from the conceptual framework, (2) an additional round of revision was included to double check the extracted barriers were rooted in the data [24] and (3) bias assessment criteria were adapted to suit our types of included studies.

2.1. Search strategy and selection criteria

Data for this review were found by searching EMBASE, PsycINFO, MEDLINE, the Cochrane Database of Systematic Reviews and the reference lists of included studies by hand. Synonyms of the four main concepts: "barrier", "somatoform", "diagnosis" and "primary care" were included in the search strategy [23]. Eligible studies were published in the past 10 years (2002–2013 inclusive, last search 11 October 2013) in English or German. Systematic reviews and peer-reviewed publications including original data corresponding to a level of evidence of four or greater according to the Centre for Evidence-based Medicine's schema [25] were considered for inclusion. Once the list of deduped titles, abstracts and bibliographic information were imported into a custom made database, two reviewers independently screened each abstract and title according to a list of exclusion criteria [23]. A third reviewer was consulted when no consensus could be reached.

2.2. Data extraction

Data were extracted using a standardised form from publications which passed the screening stage. The independently extracted data were then compared, and study information (including assessments of quality and bias) and the potential barriers were discussed and entered into a combined database. Both the inclusion of studies and/or the reason for exclusion were agreed upon by both authors in this stage. The decision as to whether extracted issues from the literature were relevant barriers to diagnosis was ultimately a consensus decision of the two reviewers (AMM and AT). We defined a barrier as a potential situation, context, or inter/intra personal factor which may create problems or hindrances in the process of diagnosis. In a final round, the studies were then re-examined by the two reviewers in order to ensure that the barriers were indeed based on the empirical results and both authors approved the final list. In addition, the first ten studies were re-reviewed to ensure consistency of the data extraction and appraisal process.

2.3. Assessment of quality and bias

All studies which entered the extraction stage underwent an assessment of level of evidence [25] and of bias according to an adapted version of the Cochrane Collaboration's assessment tool [23,26–29]. Different sets of bias assessment criteria for both qualitative and quantitative studies were then applied at the study level according to a pre-established set of definitions. Specifically, quantitative studies were rated on the potential sampling and selection, assessment and diagnostic, detection, reporting and other sources of bias identified in the literature. Qualitative studies were assessed on their credibility, transferability, dependability, conformability and other potential levels of bias [28].

2.4. Data synthesis

In the final stages, quantitative results were converted into qualitative data to enable a comprehensive synthesis of different data types. For example, the result "43% of doctors rated patients with somatoform complaints as having exaggerated their symptoms" would be coded as "(PCP) expectations that complaints are exaggerated/unfounded". Although this precluded the calculation of any effect sizes and ultimately resulted in a loss of data, this approach enabled a rich synthesis and consistent treatment of data which enabled us to identify cited barriers according to our original aim. Using elements of a textual narrative synthesis [30], we reported the relative frequency that each barrier theme was cited [30,31]. Our process also is akin to the thematic synthesis approach [30]: After being extracted and entered into the database, potential barriers were independently examined by two reviewers who then created two separate sets of groups of themes which they then (independently) aggregated and organised into higher level themes that emerged from the data [32,33]. The preliminary coding schemes were discussed at length, modified and combined. Re-coding of all barriers was then performed by the two reviewers together. The coding scheme was iteratively adjusted during the process of synthesis when needed and agreed upon by both reviewers. When there were multiple themes raised within one part of extracted data, multiple barriers were coded, again by consensus decision.

3. Results and discussion

Database searches resulted in N = 1357 publications which were then deduped; non-peer reviewed articles or studies published in languages other than English or German were removed resulting in n = 642 (see Fig. 1). A third reviewer was consulted for six abstracts (<1% of screened) when consensus could not be reached between two independent reviewers. Consensus decisions as to the inclusion of studies at the full-text stage and subsequent rounds were reached (moderate inter-rater reliability whether to include studies or not at the data extraction stage; n = 177 publications, $\kappa = 0.57$) [34]. An additional round of assessment of included studies was undertaken to ensure that the reviewers agreed with the final list of studies.

A total of n = 177 studies entered the data extraction stage either via the database searches (n = 144) or via hand searching of reference lists of included studies (n = 33). All data were extracted from the studies at this stage and they were rated for the level of evidence to get an overall impression of the quality of the relevant literature. Relatively few were rated as having a high level of evidence (i.e., level 1; see Fig. 2). Almost half of the studies in the data extraction stage were rated as having the lowest level of evidence (level 5), i.e. clinical knowledge, experience or opinion [25].

The final n = 42 studies included in the qualitative synthesis were also assessed for their risk of bias (except for the two systematic reviews). Of these 42, 15 are quantitative, 25 are qualitative studies and 2 are systematic reviews. Despite the low level of evidence found in the studies in the extraction stage, none of the studies above evidence level 5 were excluded due to having extremely high risk of bias. A high risk of assessment or diagnostic bias was identified in 2 out of 15 (13%) quantitative studies and the risk of transferability bias was identified in 4 out of 25 (16%) qualitative studies (see Fig. 3). Overall this suggests that the current results may be very study-specific (see Supplementary Table 1 for study details and individual interpretational caveats).

In our bottom-up analysis of the data, it soon became clear that the categorisation and nature of themes which emerged from the data were different from the conceptual framework in the protocol [23]. Using a grounded theory approach, extracted barriers were grouped and organised into a hierarchical tree structure [33] by two reviewers. In this process, barriers with highly similar content were grouped together and were finally given the same barrier level code. The frequencies at the barrier-level code are displayed in Supplementary Table 2. Coding was restricted so that only one barrier-level code could be used per study. These barrier-level codes were then iteratively organised into thematic categories which are clusters of similar concepts. With the aim to reduce redundancy and minimise information loss, barrier and thematic category level codes were combined, modified, or split during discussions and the iterative coding process.

To facilitate the presentation of the synthesis, the 16 thematic categories were organised into five over-arching themes (patient, PCP related, doctor–patient interactional, situational and conceptual & operational barriers). Fig. 4 shows this overview including the resulting thematic categories and over-arching themes.

We identified n = 473 barriers but n = 94 were repetitive at the barrier code level and removed from further analysis leaving 379 uniquely coded barriers. The overwhelming volume of data prevented us from presenting an exhaustive description of all information at the barrier code level. We decided, therefore, to provide an overview and descriptive synthesis at the over-arching theme and thematic category level (please see Fig. 4). As such, the citations included in the synthesis are just examples to illustrate each thematic category.

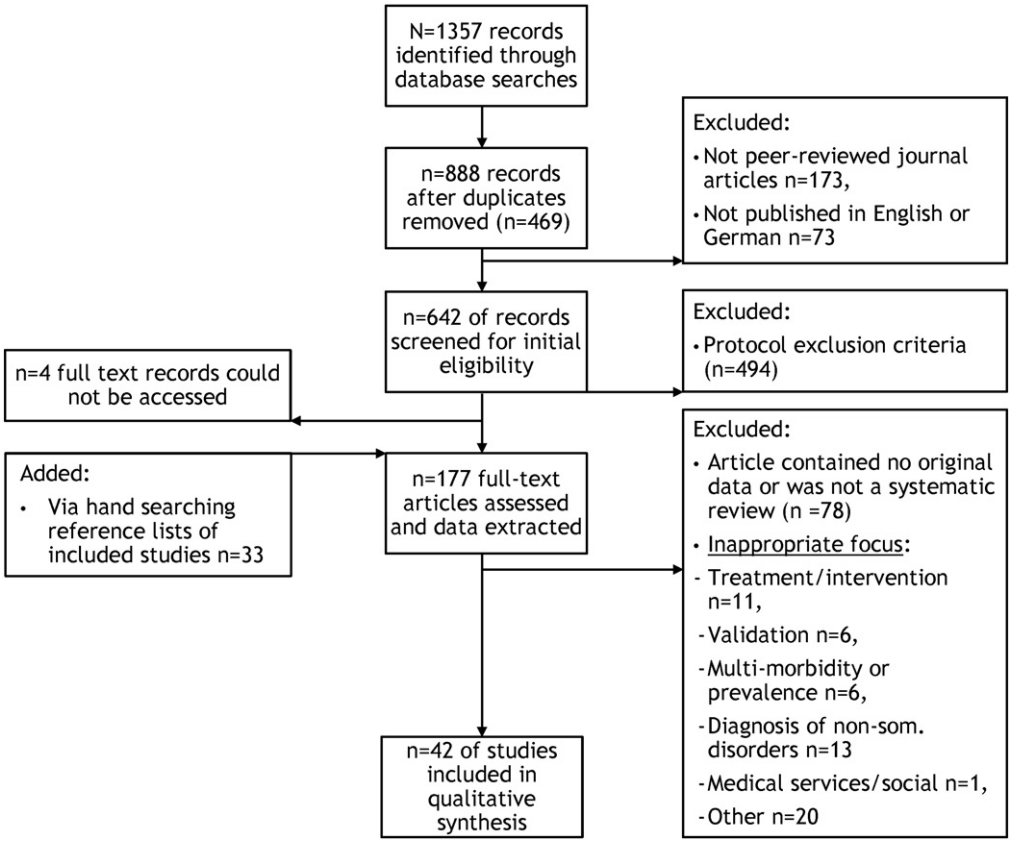

Fig. 1. Flow of information through the different phases of the systematic review according to the PRISMA statement [22]. Note: Email correspondence with an author resulted in two additional studies being screened: one duplicate and one judged to be not relevant for the review (not depicted).

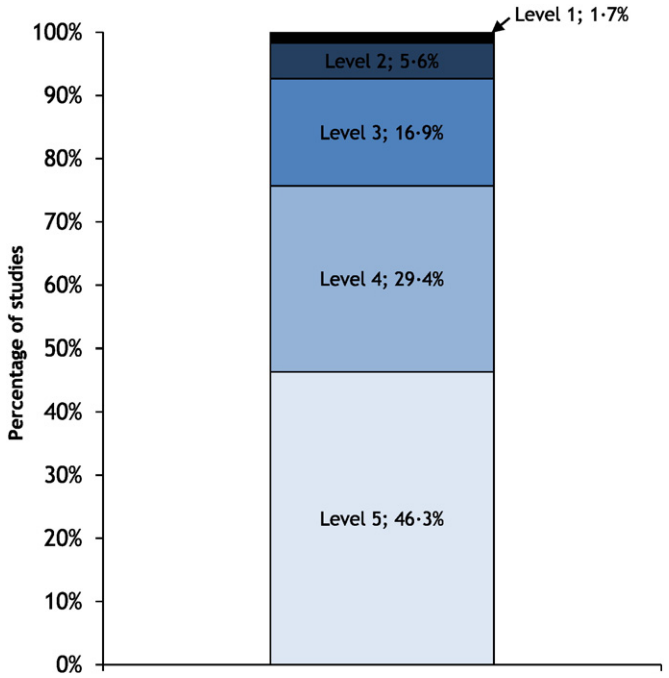

Fig. 2. Percentage of studies according to Oxford Centre for Evidence Based Medicine's levels of evidence. *Note.* All studies included at the text extraction stage (n = 177) were rated [25]. Category interpretation: level 1: high level systematic reviews; level 2: systematic reviews, high level cohort/cross sectional studies, randomised trials; level 3: non-randomised cohort/follow-up studies; level 4: case-series, case control studies, qualitative studies with methodological weaknesses; level 5: case reports, narrative reviews or opinion pieces.

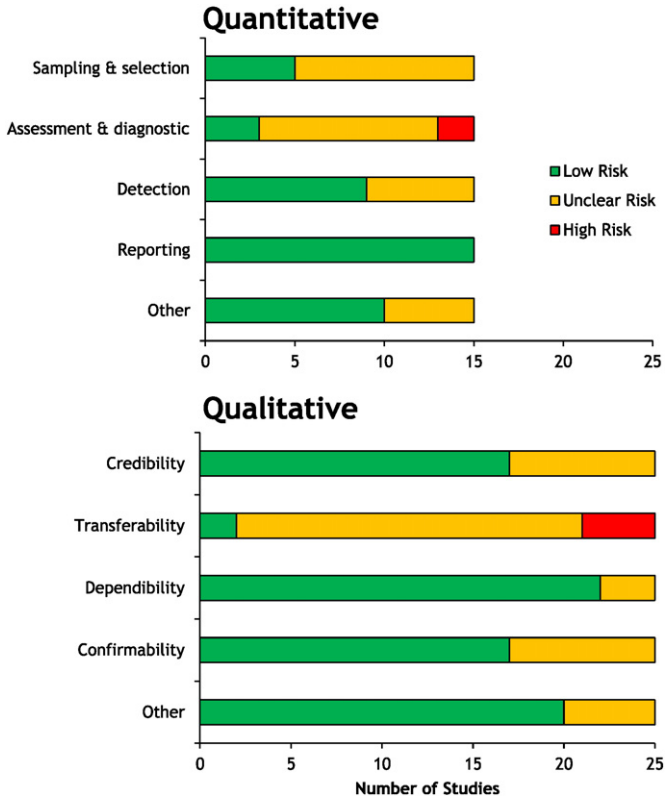

Fig. 3. Assessment of risk of bias for quantitative (n = 15; upper) and qualitative studies (n = 25; lower) according to an adaptation of the Cochrane Collaboration's recommendations [26,27]. *Note:* "Low Risk" (green) suggests a low risk of bias is present, "Unclear Risk" (orange) indicates that it is unknown the extent to which there is a risk of bias and "High Risk" (red) suggests there is a high risk of bias. The category "Other" sources of bias included attrition bias, selection bias, demand characteristics or recall bias. Two systematic reviews were not included in this assessment due to differing criteria being required.

3.1. Patient related barriers

3.1.1. Communication and consultation behaviour

One clear recurrent motif that may impede diagnosis in primary care is patients' communication style and presentation of their symptoms. Analysed data suggests that patients' narratives can be chaotic [35–37], complex [38] or inconsistent [39]. Such presentations may not only be overwhelming for PCPs, they may resist explanation [38] and preclude information synthesis. Patients' symptom presentations may be incomplete [40] or implicit [41] which can further increase diagnostic difficulty. Studies suggested that some patients are also reluctant to share psychosocial information [35,42] or want to protect their PCP from burden [35].

Patients' presentations may come across as demanding [37], or somehow premeditated to pursue certain aims or ideas in the consultation [43,44]. This can lead to the PCP feeling pressured or controlled [38,44]. In cases where the physical pathology is absent, patients may feel as though their complaints are not a legitimate use of consultation time [45,46]. In response to this need to appear credible [47], patients may use graphic and emotional language [38] in an attempt to convince the PCP of the seriousness of their complaints [41,43,48].

3.1.2. Predominance of biomedical disease model

The predominance of the biomedical disease model is evident in some patients' explanations of their symptoms [38,49] and expectations. For example, patients may expect to be examined and receive medical treatment [50] and some are often very focused on their physical symptoms [36]. Some patients believe that their symptoms are signs of serious pathology [46] and have a fear of PCP attention being diverted away from the physicality of their symptoms (if they give psychosocial cues) [35]. Patients are sometimes described as having low psychological insight [36,50,51] and results suggested that some patients tend to only link their symptoms to psychological factors when it is suggested by medical staff [46]. This is potentially problematic given the multi-factorial nature of current aetiological models [10]. Patients may resist psychological symptom attributions or change their consulting behaviour due to fear of social stigma or other negative consequences [35,46].

3.1.3. Belief that primary care is an inappropriate setting

As an extension of the biomedical model, patients' behaviour and expectations of primary care consultations may be explained by a belief that primary care is an inappropriate setting to discuss psychosocial issues. This includes a strong belief in self-management of symptoms [35] or an assumption that treatment options are poor [46,50]. Patients have reported that a reluctance to consult about psychosocial problems may also be due to negative medical experiences in the past [46]. Alternatively, patients may have a lack of faith in PCPs' abilities to manage such complaints [35,43,52]. Patients have also indicated that they would like more guidance [36] or do not feel involved in treatment decisions [52].

3.2. PCP related barriers

3.2.1. Communication & consultation behaviour

We identified many examples of problems with PCPs' communication or consultation behaviour. Firstly, PCPs do not always fully explore MUS patients' concerns [41,52–56]. Moreover, evidence suggests that PCPs rarely provided 'evidence based responses' [55] and may use vague or ineffective explanations for patients' complaints [48,57]. In addition, PCPs may exhibit a lack of empathy when discussing patients'

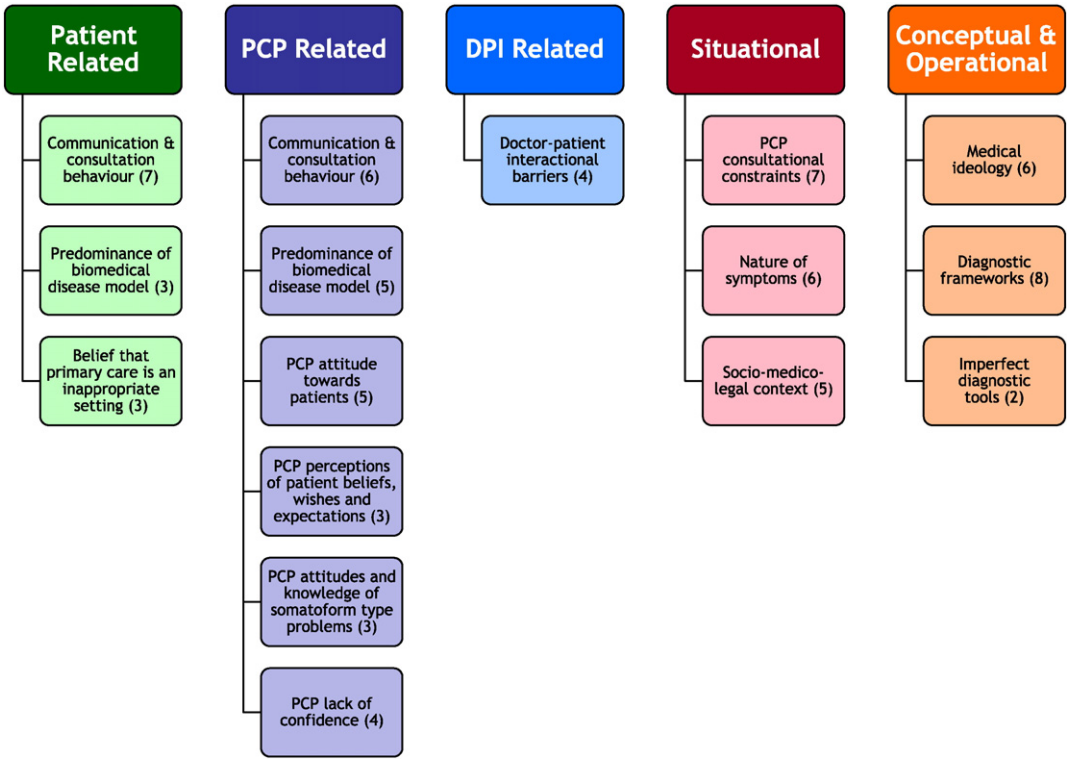

Fig. 4. Potential barriers to the diagnosis of somatoform disorders grouped according to five over-arching themes made up of the 16 thematic categories. Note. Numbers in brackets refer to the number of barrier-level codes which comprise the thematic category. The barrier-level codes and frequencies are shown in Supplementary Table 2. PCP = primary care practitioner, DPI = doctor–patient interactional.

symptoms [51,56] and some reported psychological disengagement from their patients [58]. There may also be problems transferring both psychological and biomedical skills into everyday practice [37,39] and employing objective management strategies [43,44].

3.2.2. Predominance of the biomedical disease model

Like some patients, some PCPs operate within a biomedical disease model. If we follow the multi-factorial understanding in accordance with current medical guidelines [10], such an emphasis on the biological side may negatively affect diagnostic processes. Evidence suggests that PCPs often invest a lot of time and energy into primarily medical investigations and somatic care [38,39,41,48,55,56,59]. Reasons may include PCPs fearing missing a serious somatic diagnosis [37,45,60,61] or a reluctance to conclude that problems are psychosocial in nature [45,62]. PCPs rarely link symptoms with possible causes such as underlying psychosocial stresses [48,55] and may often feel unable to do so [43]. Some PCPs also devalue psychological skills [58] and some believe that psychological interventions are not medically beneficial [43,50,63].

3.2.3. PCP attitudes towards patients

Some PCPs have negative accounts of patients with somatoform type complaints [43,58]. PCPs described caring for such patients as a burden [44], frustrating [39,60,64], stressful [65] and difficult [66,67]. It is not surprising that evidence suggests that PCPs report reduced energy [37,68] or enjoyment [69] when working with these patients. Although this has to be explicitly empirically tested, we argue that such attitudes and stressful experiences can negatively affect the diagnostic process. In addition, PCPs have particular stereotypes about the demographic characteristics associated with a somatoform type diagnosis [70] such as being female [39,66] or having a particular social background [61,68] or personality traits [44]. In addition, PCPs may doubt the genuineness of symptom presentation [42,47], especially when many symptoms are presented [37].

3.2.4. PCP perceptions of patient beliefs, wishes and expectations

PCPs may feel as though patients lack insight [43] or have preconceived ideas about the origin of their symptoms [44,65]. In fact, evidence suggests that PCPs are often unaware of patients' beliefs [71] and may expect that patients will not accept psychosomatic explanations [60] or treatment [44] of their symptoms. Some PCPs believe that patients want consultations revolving around biomedical explanations [39] and some PCPs do not respond to patients' implicit cues or attempts to discuss concerns [41,54]. In addition, some PCPs feel as though they have little influence over the patients' understanding of their illness [43] and perceive patients as resisting their recommendations [58,64].

3.2.5. PCP attitudes and knowledge of somatoform type problems

Evidence suggests that some PCPs do not consider the presentation of somatoform type symptoms as a medical matter [37] or that these patients' complaints are a legitimate use of health care [58]. Furthermore, a lack of specific training [43,70] or lack of experience [37,60] may also be problematic for the diagnostic process. As an example, PCPs reported that they had limited clinical understanding of chronic fatigue syndrome [47] and the minority of PCPs could correctly identify all three main clinical features [69]. Included studies also suggested that, for example, some PCPs question the existence of some functional diagnoses [45,47,69] as useful clinical entities. Changes to the classification of functional syndromes over time may have negatively influenced some PCPs' perceptions [44].

3.2.6. PCP lack of confidence

A highly cited potential barrier which may underpin many problems is a lack of PCP confidence in dealing with somatoform type complaints. Evidence suggests that PCPs sometimes feel unable to explain symptoms [37,57] or feel unsure or inadequate [43,67,69] when dealing with patients. The feeling of being unable to help patients [58,65] or feelings of frustration [39,60,64] have also been cited. Feelings of

uncertainty or unease also extend into decisions regarding the next step such as treatment options or referrals [37,47,63,67]. However, PCPs need to appear competent and knowledgeable [44,45] to maintain their medical authority. This authority can be challenged by uncertain cases [64,65] and the problem can be exacerbated by limited knowledge or training [47,61]. PCPs may feel that it is a 'failure' to not find an organic cause [51]. For some, maintaining biomedical discourse may enable PCPs' authority to remain intact [47].

3.3. Interactional barriers

3.3.1. Doctor–patient interactional barriers

This section includes barriers which were more concerned with complex synergistic interactional dynamics which may also hinder diagnosis. For example, PCPs report feeling controlled or dominated by MUS patients which can ultimately affect the course or outcome of the consultation [37,43,45,57,60,72]. In contrast, evidence suggests that PCPs do not incorporate patients' requests for somatic treatment [52,59]. An underlying problem may be that PCPs and patients often disagree on symptom aetiology [41,44,66] and do not share a mutual perspective [39,54,64] which may also have emotional consequences on the doctor–patient relationship [47]. Specifically, some PCPs fear that suggesting that patients' symptoms are heavily influenced by psychosocial factors will have adverse consequences [39,45]. It is difficult to imagine how an agreement can be reached when evidence suggests that both patients [35] and PCPs [60] believe that the other party has a less sophisticated understanding of the symptoms/causes than themselves.

3.4. Situational barriers

3.4.1. PCP consultational constraints

There are a number of practical constraints which are inherent to practising primary care which may ultimately affect somatoform type disorder diagnosis as well as the diagnosis of other common mental disorders in primary care. For example, diagnosis may be affected by the fact that PCPs often have limited time [37,65] and a heavy patient load [19]. Such problems are already known to patients [35] and may ultimately affect the doctor–patient relationship [43]. Diagnoses may, in some cases, be influenced by billing considerations [62] and results suggest that some patients are concerned that PCP decisions are influenced by financial factors [36]. Finally, a lack of local mental health resources [44] may also complicate matters.

It can also be difficult for PCPs to foster a strong doctor–patient relationship [43] and patients may feel that the primary care consultation is only a snapshot of their lives [47]. Primary care is inherently challenging because PCPs need to address a broad range of concerns [64] at the earliest stages of development [70]. Furthermore, the use of diagnostic codes may not adequately track the course of symptoms over time [70]. Other evidence suggests that there are fewer symptoms included in medical records than patients report in checklists [40,42]. In addition, sometimes patients do not have an ongoing relationship with their PCP [47] or are simultaneously managed by a number of practitioners [35,65].

3.4.2. Nature of symptoms

In addition to practical constraints, the nature of somatoform type symptoms themselves is challenging for PCPs. Evidence suggests that these symptoms are often transient [46], self-limiting [45,73] and not always reported by patients [40]. Symptom report can also be influenced by recall effects [73]. Further compounding the issue is that there is often no direct link between patients' impairment and symptom presentation [39,40,64].

Another factor complicating the diagnostic process is the overlap between somatoform type disorders and other mental and physical illness. Firstly, there is co-morbidity between physical disease and somatoform type complaints [36,49,62,63,74,75]. Reasons for consultations are, therefore, often a mixture of both medically unexplained and explained symptoms [36,71] which may be difficult to separate [65,73]. Differential diagnosis might then be further complicated by the mild nature of somatoform type symptoms [19] or the high co-morbidity of somatoform type disorders with other mental disorders [19,36,49,62,74,75]. The complexity of such patient presentations creates a challenging environment for diagnosis.

3.4.3. Socio-legal context

Diagnosis in primary care cannot be divorced from its social and legal context. For example, PCPs need to validate or legitimise suffering so patients can remain in the "sick role" [68]. Results suggest that some PCPs consider observable physical pathology or medical explanation as more legitimate and acceptable than mental distress [45,46,60,70]. Patients with somatoform type symptoms, therefore can often have uncertain legitimacy [64] or can be seen as transgressing the social work ethic [44]. An additional problem is that diagnosis has professional consequences for PCPs [68]. Importantly, PCPs appear to be aware of this medico-legal framework [65] and medical, social and legal matters are frequently combined in primary care practice [50,60,68]. In addition, influences such as the media [60] can change how PCPs or patients understand and evaluate such illnesses. Diagnostic processes can also be complicated by cultural differences [50] and difficulties with cross-cultural communication [61].

3.5. Conceptual and operational barriers

3.5.1. Medical ideology

The most frequently identified cited barriers belong to the thematic category "Medical Ideology". Firstly, the overall primacy of the biomedical model in primary care consultations is manifest in many ways [47]. Unfortunately, bio-mechanical and psychosocial illnesses are not considered to be equally acceptable [45]. Results suggest that the priority is medical investigation in primary care [58], which focuses on physical symptoms [50], ritual care [57], exclusion of physical disease [60,65], or finding an organic basis [51,63]. In some cases, social or psychological alternatives to the biomedical model are only considered after a somatic approach fails to help [37,46]. Evidence suggests that the antiquated mind-body dualism [70] is still present and some PCPs make an explicit separation between the biomedical and psychological aspects of their role [58] and when explaining symptoms [45,55]. This is problematic when we consider current multi-factorial aetiological models of non-specific, functional and somatoform complaints [10].

There is a debate amongst PCPs regarding the nature [70] and frequency [60,71] of somatoform type complaints and one study found that only few junior doctors consider somatisation to be a universal expression of distress [61]. Another example suggests that the status of disorders such as fibromyalgia [45] or chronic fatigue syndrome [44] is either often unclear or has also changed over time. Patients are aware of this disagreement in the medical community [47] which can also complicate matters. Disagreements extend to the biomedical explainability of symptoms in, for example, psychogenic non-epileptic seizures [63], which laboratory tests are typically helpful [69] or the utility of psychotherapy in primary care [67].

It appears that there is a common belief that medicine should be able to 'explain everything' [70]. In turn, PCPs may feel that patients may have unrealistic expectations about their care [37] and the course of their disease [60]. Some PCPs are also aware that contact with secondary care settings can help confirm the idea of symptoms having a physical cause [65]. The different views [46] and nomenclature [74] of primary and secondary care can also be problematic.

3.5.2. Diagnostic frameworks

The pre-DSM-5 classification systems were described as being difficult to use [19] or impractical [75] or providing little information about

the illness in primary care [45]. More specifically, differential diagnosis was particularly difficult due to syndromes or categories described as being mild, not distinct and overlapping [19,70,74]. Furthermore, some criteria were described as being too restrictive which limits the types of complaints which can be diagnosed [62,74,75]. Some PCPs prefer to use functional or symptom diagnoses [19,62] or diagnosing patients with high impairment with depression [75]. Alternatively, patients can be simply described as having MUS, which can be a homogeneous conceptualisation of a heterogeneous group [36] which can lead to information loss [70].

Some results may be attributed to unclear conceptualisation of somatoform type phenomena in primary care [45,61,70,74]. When the distinction between medically explained and non-explained symptoms is central to diagnosis, somatoform type disorders are often diagnosed by a process of elimination [61,70,74]. Not only has this emphasised biomedical investigations to exclude physical disease [37,45,60,65], it risks lowering the importance of acknowledging psychological factors. Another complication may be the lack of research into the use of some diagnostic categories in primary care [62,70], especially in the over 85 age group [74].

3.5.3. Imperfect diagnostic tools

Our results suggest that somatoform type dysfunctions are difficult to assess using questionnaires [74] and interviews, especially when patients must recall lifetime symptoms [73]. Furthermore, there is only moderate agreement between PCPs' diagnoses and results of psychometric instruments [75]. Difficulties in diagnosis may be also due to an inability to pinpoint precise locations of discomfort [44]. It is difficult to be definite in the diagnostic process [65] especially when there are often no clear objective laboratory findings [68,70]. In contrast, physical examinations often give no indication of disease or physiological abnormality [39,45] which is at odds with the impairment that the patient presents [47,64].

4. Conclusions and implications

Through a systematic search and synthesis of the relevant literature, this qualitative review was the first to identify and conceptualise a broad number of barriers which may impede the diagnosis of somatoform and related disorders in primary care. From our final n = 42 qualitative and quantitative studies as well as systematic reviews, we identified n = 379 unique barriers which were coded using 77 barrier-level codes, 16 thematic categories and five over-arching themes: patient, PCP, interactional, situational, and conceptual and operational barriers.

Our results have important implications for clinical practice and the design of future studies. The diverse range of barriers reiterates the complexity of the diagnostic process and highlights the need for wide-ranging or multi-level interventions. For example, training programmes based on the widely-used reattribution model outline a way of managing patients with MUS in primary care by helping 'reattribute' symptoms to psychological causes [76]. In accordance with criticisms of the reattribution model [76], our results suggest that only a proportion of the possible barriers would be addressed by such training programmes which focus on PCP attitudes and consultation behaviour. Future interventions should also address the (changeable) conceptual, situational and operational barriers to diagnosis we have identified. Integrated care approaches may be more comprehensive from this perspective [76].

From a clinical perspective, our results re-iterate the importance of validating symptoms and providing satisfactory explanations for patients' complaints [77]. For example, Risør [78] argues that including patients' idioms in the discussion about illness explanations is especially important for patients with MUS. Although a lot of the barriers we found emphasise the psychological part of diagnosis, it is important, however, not to ignore patients' individual preferences, the physicality of the symptoms themselves nor indications of a potential serious physical illness [76]. However, a fear of missing a serious illness was a highly cited theme in our review and appeared to underpin other barriers such as PCPs focussing on somatic interventions [38] and their intolerance of uncertainty [65]. As suggested in the introduction to the Dutch, and in the German guidelines, we therefore support a "parallel" track diagnosis which investigates linked physical and psychological components simultaneously [10,14]. A multifactorial understanding should be emphasised which would encompass all contributing aspects, of non-specific, functional and somatoform complaints. Such an understanding may be facilitated by the changes to DSM-5 which include positive psychological criteria while the medical inexplicability of symptoms is no longer required. Maintaining the balance between providing psychosocial support and performing physical investigations is likely to remain a central challenge of primary care in the future. PCPs should be given support from psychosomatic specialists, psychologists, or psychiatrists in identifying patients who require additional psychosocial support.

We also identified a group of barriers suggesting that patients do not judge the primary care setting to be appropriate to discuss psychological problems. This could be due to a lack of trust in medical treatment of emotional and psychological symptoms [35,43,52], a belief in self-management [35] or fear of being stigmatized [46,50]. If we are moving to a more integrated model of mental health care within the primary care setting [9], this understanding of what is appropriate to discuss with PCPs needs to change via practice-level interventions or public health initiatives.

Some barriers such as the nature of symptoms, consultational constraints and the socio-medico-legal context are intrinsic to somatoform type complaints. It is important, however, that they are recognised so that these factors can be accounted for in future research and clinical trials. In contrast, we postulate that some barriers regarding attitudes towards non-specific, functional, and somatoform disorders, PCP confidence, doctor–patient communication and patients' expectations of care are modifiable and resources should, therefore, be directed accordingly.

It is important to make clear that some of the barriers we identified are inherent to the nature of somatoform type disorders and primary care in general. Our results may include barriers which are not specific to the diagnostic process of somatoform and related disorders but are, nonetheless, judged to be relevant and were, therefore, included. These barriers may overlap with the diagnosis of other common mental disorders in primary care such as depression and anxiety disorders. Such overlap should be investigated in future studies. Similarly, sometimes the barriers presented also touched on some general management or treatment-related issues and are not exclusively particular to the diagnostic process of somatoform type disorders. Our results show that the diagnostic context is highly complex in primary care, and the cause of each barrier we present is probably multi-factorial.

The predominance of the biomedical disease model [79] is, for example, an underlying paradigm in western health care which would be extremely difficult to change. Such barriers were evident in the *Patient*, *PCP* and *Conceptual* & *Operational* themes and may underpin other problems. The widespread impact of these barriers, combined with the highly cited "medical ideological" barriers suggests that it will be difficult to radically change the separation and demotion of psychological factors in primary care. Like the new 'Somatic Symptom Disorder' in DSM-5 [21], perhaps the removal of the explicit distinction between what is medically explained and medically unexplained will help reduce the importance of the biomedical paradigm and enable integrated care. This may also better align with patients' understanding of their symptoms, as some patients have been shown to have multiple illness models (idioms) [78]. Also, many of the *Conceptual* & *Operational Barriers* related to the questionnaires and diagnostic tools may already be overcome with the introduction of DSM-5. Such postulations need to be tested empirically but it may take years or decades for a paradigm shift to be operationalised in routine clinical practice. Now is the ideal time to

foster a more appropriate management of patients by capitalizing on these conceptual changes.

Our methodological approach to combine qualitative and quantitative data, although innovative, does have some limitations. The strength of our analysis lies in the iterative bottom-up coding scheme which is directly based on the extracted data to closely reflect the current state of research. Although we made every attempt to reduce bias by having two reviewers independently screen, extract, rate and code the data (in the first place), our results are inherently based on the reviewers' interpretation of what may be a barrier to diagnosis. Such inferences can be controversial but are often inherent in the synthesis of qualitative research [33]. As we have aggregated potential barriers, the specific role of the barriers should be investigated empirically. For example, the utility or hindrance of PCPs' stereotypes of patients with somatoform type disorders [39,61,66,68,70] should be directly investigated as it could be that diagnosis is hindered when patients do not fit stereotypical profiles.

The strength of our conclusions is ultimately limited by the quality of the included studies. However, our data is presented qualitatively with the frequencies of each category being recorded and displayed in Supplementary Table 2 rather than placing emphasis on particular results. Such an approach precludes the statistical determination of the relative importance of each barrier but does give a conceptual overview of current concepts in the literature. It may be the case that some barriers have a larger impact on the diagnostic process. The heterogeneity of inclusion criteria and overlapping diagnostic constructs prevented us from separating barriers according to their associated syndrome. Barriers relevant to CFS, for example, may be different to somatization disorder. Such an analysis was also made difficult by the distinct lack of papers which used the strict diagnosis of somatoform disorders. It is also not clear whether some of these barriers are specific to the diagnosis of somatoform disorders or also relevant to other common mental disorders in primary care. Finally, our inclusion of studies written in English or German may have introduced a cultural bias in our results. Given that there were only 73 abstracts that were not English or German, we assume that this bias is minimal.

Results suggest that more research is needed in the field in order to fully assess PCPs' diagnostic challenges. The majority of the current barriers were extracted from studies where the investigation of barriers to diagnosis was not the primary aim or focus. This, combined with the result that almost half the identified publications had a level of evidence of five [25] (such as narrative reviews or opinion pieces), suggests that well conducted empirical studies are urgently lacking in this field. So saying this, the current results are a systematic basis on which the impact of the changes to the DSM-5 somatic symptom disorder should be tested. The review should be repeated in the future and the results compared to those of the current study to determine which, if any, barriers have changed or whether new barriers are identified. It could be, for example, that some of the problems with the diagnostic frameworks are alleviated (e.g. *Diagnosis by exclusion* or *category overlap/not clear*) whereas new difficulties in, for example, assessing the "excessiveness" of thoughts, feelings or behaviours in relation to symptoms are identified. The review has identified potential challenges in primary care which we hope can spark new research and direct resources to where they are needed most.

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.jpsychores.2015.11.002.

Declaration of interests

The authors have no competing interests to report.

Funding and ethical approval

The review was not externally funded and the conduction and reporting of results was not externally influenced. The current study did not require ethical approval.

Registration and protocol

The current study was registered in PROSPERO (CRD42013002540) and the protocol has been pre-published: Murray AM, Toussaint A, Althaus A, Löwe B. Barriers to the diagnosis of somatoform disorders in primary care: protocol for a systematic review of the current status. Systematic Reviews. 2013;2(99).

Acknowledgements

The authors would like to thank Dr. Björn Riegel for his assistance in the early stages of the review process and Dr. Meike Shedden-Mora for her helpful comments on the manuscript.

References

[1] P. Fink, M. Rosendal, Recent developments in the understanding and management of functional somatic symptoms in primary care, Curr. Opin. Psychiatry 21 (2) (2008) 182–188 (PubMed PMID: 2008115104).
[2] N. Steinbrecher, S. Koerber, D. Frieser, W. Hiller, The prevalence of medically unexplained symptoms in primary care, Psychosomatics 52 (3) (2011) 263–271, http://dx.doi.org/10.1016/j.psym.2011.01.007 (PubMed PMID: 21565598).
[3] M.W.M. de Waal, I.A. Arnold, J.A.H. Eekhof, A.M. van Hemert, Somatoform disorders in general practice : prevalence functional impairment and comorbidity with anxiety and depressive disorders, Br. J. Psychiatry 184 (2004) 470–476.
[4] P. Fink, L. Sorensen, M. Engberg, M. Holm, P. Munk-Jorgensen, Somatization in primary care. Prevalence, health care utilization, and general practitioner recognition, Psychosomatics 40 (4) (1999) 330–338 (Epub 1999/07/14, doi: S0033-3182(99)71228-4 [pii] 10.1016/S0033-3182(99)71228-4. PubMed PMID: 10402880.).
[5] H. Haller, H. Cramer, R. Lauche, G. Dobos, Somatoform disorders and medically unexplained symptoms in primary care: a systematic review and meta-analysis of prevalence, Dtsch. Arztebl. Int. 112 (2015) 279–287.
[6] J.L. Levenson, The somatoform disorders: 6 characters in search of an author, Psychiatr. Clin. N. Am. 34 (3) (2011) 515–524.
[7] J.C. Hamilton, M. Eger, S. Razzak, M.D. Feldman, N. Hallmark, S. Cheek, Somatoform, factitious, and related diagnoses in the national hospital discharge survey: addressing the proposed DSM-5 revision, Psychosomatics 54 (2) (2013) 142–148, http://dx.doi.org/10.1016/j.psym.2012.08.013 (PubMed PMID: 23274011).
[8] J.E. Dimsdale, F. Creed, J. Escobar, M. Sharpe, L. Wulsin, A. Barsky, et al., Somatic symptom disorder: an important change in DSM, J. Psychosom. Res. 75 (3) (2013) 223–228, http://dx.doi.org/10.1016/j.jpsychores.2013.06.033 (PubMed PMID: 23972410).
[9] World Health Organization (WHO), World Organization of Family Doctors (Wonca), Integrating Mental Health Into Primary Care: A Global Perspective, WHO, Geneva, Switzerland, 2008.
[10] R. Schaefert, C. Hausteiner-Wiehle, W. Hauser, J. Ronel, M. Herrmann, P. Henningsen, Clinical practice guideline: non-specific, functional, and somatoform bodily complaints, Dtsch. Arztebl. Int. 109 (47) (2012) 803–813.
[11] B. Starfield, Is primary care essential? Lancet 344 (8930) (1994) 1129–1133 (PubMed PMID: 7934497).
[12] C. Hausteiner-Wiehle, R. Schäfert, W. Häuser, M. Herrmann, J. Ronel, H. Sattel, et al., S 3 Leitlinie: Umgang mit Patienten mit nichtspezifischen, funktionellen und somatoformen Körperbeschwerden, 2012 (AWMF-Reg.-Nr. 051–001).
[13] T. Olde Hartman, N. Blankenstein, B. Molenaar, D.B. van den Berg, H. van der Horst, I. Arnold, et al., NHG guideline on medically unexplained symptoms (MUS), Huisarts & Wetenschap 56 (5) (2013) 222–230.
[14] C.M. van der Feltz-Cornelis, R. Hoedeman, E.J.W. Keuter, J.A. Swinkels, Presentation of the multidisciplinary guideline medically unexplained physical symptoms (MUPS) an somatoform disorder in the Netherlands: disease management according to risk profiles, J. Psychosom. Res. 72 (2011) 168–169.
[15] A. Gustavsson, M. Svensson, F. Jacobi, C. Allgulander, J. Alonso, E. Beghi, et al., Cost of disorders of the brain in Europe 2010, Eur. Neuropsychopharmacol. 21 (10) (2011) 718–779 (Epub 2011/09/20., doi: S0924-977X1100215-X [pii]; 10.1016/j.euroneuro.2011.08.008. PubMed PMID: 21924589).
[16] A.J. Barsky, E.J. Orav, D.W. Bates, Somatization increases medical utilization and costs independent of psychiatric and medical comorbidity, Arch. Gen. Psychiatry 62 (8) (2005) 903–910 (PubMed PMID: 2005364120).
[17] C. Bass, S. May, ABC of psychological medicine: chronic multiple functional somatic symptoms, BMJ 325 (7359) (2002) 323–326.
[18] P. Henningsen, S. Zipfel, W. Herzog, Management of functional somatic syndromes, Lancet 369 (9565) (2007) 946–955, http://dx.doi.org/10.1016/S0140-6736(07)60159-7 (PubMed PMID: 17368156).
[19] A. Kuruvilla, K.S. Jacob, Perceptions about anxiety, depression and somatization in general medical settings: a qualitative study, Natl Med. J. India 25 (6) (2012) 332–335 (PubMed PMID: 23998862).
[20] R.C. Smith, E. Korban, M. Kanj, R. Haddad, J.S. Lyles, C. Lein, et al., A method for rating charts to identify and classify patients with medically unexplained symptoms, Psychother. Psychosom. 73 (1) (2004) 36–42, http://dx.doi.org/10.1159/000074438 (PubMed PMID: 14665794; PubMed Central PMCID: PMC1993543).

[21] American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), American Psychiatric Publishing, Arlington, VA, 2013.
[22] A. Liberati, D.G. Altman, J. Tetzlaff, C. Mulrow, P.C. Gøtzsche, J.P.A. Ioannidis, et al., The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration, PLoS Med. 6 (7) (2009), e1000100.
[23] A.M. Murray, A. Toussaint, A. Althaus, B. Löwe, Barriers to the diagnosis of somatoform disorders in primary care: protocol for a systematic review of the current status, Syst. Rev. 2 (99) (2013).
[24] J. Noyes, S. Lewin, Chapter 5: Extracting Qualitative Evidence, in: J. Noyes, A. Booth, K. Hannes, A. Harden, J. Harris, S. Lewin, et al., (Eds.), Supplementary Guidance for Inclusion of Qualitative Research in Cochrane Systematic Reviews of Interventions, Cochrane Collaboration Qualitative Methods Group, 2011.
[25] OCEBM Levels of Evidence Working Group, The Oxford 2011 Levels of Evidence, Centre for Evidence Based Medicine, 2011.
[26] J.P.T. Higgins, D.G. Altman, Chapter 8: assessing risk of bias in included studies, in: J.P. Higgins, S. Green (Eds.), Cochrane Handbook for Systematic Reviews of Interventions. 5.0.1 [Updated September 2008], The Cochrane Collaboration, 2008.
[27] J.P.T. Higgins, D.G. Altman, P.C. Gøtzsche, P. Jüni, D. Moher, A.D. Oxman, et al., The Cochrane Collaboration's tool for assessing risk of bias in randomised trials, Br. Med. J. 343 (2011) d5928.
[28] K. Hannes, Chapter 4: Critical Appraisal of Qualitative Research, in: J. Noyes, A. Booth, K. Hannes, A. Harden, J. Harris, S. Lewin, et al., (Eds.), Supplementary Guidance for Inclusion of Qualitative Research in Cochrane Systematic Reviews of Interventions, Cochrane Collaboration Qualitative Methods Group, 2011.
[29] J. Noyes, J. Popay, A. Pearson, K. Hannes, A. Booth, Chapter 20: Qualitative Research and Cochrane Reviews, in: J.P.T. Higgins, S. Green (Eds.), Cochrane Handbook for Systematic Reviews of Interventions, The Cochrane Collaboration, 2008.
[30] P.J. Lucas, J. Baird, L. Arai, C. Law, H.M. Roberts, Worked examples of alternative methods for the synthesis of qualitative and quantitative research in systematic reviews, BMC Med. Res. Methodol. 7 (4) (2007)http://dx.doi.org/10.1186/471–2288-7-4.
[31] E. Barnett-Page, J. Thomas, Methods for the synthesis of qualitative research: a critical review, BMC Med. Res. Methodol. 9 (59) (2009)http://dx.doi.org/10.1186/471–2288-9-59.
[32] A. Harden, J. Garcia, S. Oliver, R. Rees, J. Shepherd, G. Brunton, et al., Applying systematic review methods to studies of people's views: an example from public health research, J. Epidemiol. Community Health 58 (2004) 794–800.
[33] J. Thomas, A. Harden, Methods for the thematic synthesis of qualitative research in systematic reviews, BMC Med. Res. Methodol. 8 (45) (2008) 2008;8:45).
[34] J.R. Landis, G.G. Koch, The measurement of observer agreement for categorical data, Biometrics 33 (1) (1977) 159–174.
[35] S. Peters, A. Rogers, P. Salmon, L. Gask, C. Dowrick, M. Towey, et al., What do patients choose to tell their doctors? Qualitative analysis of potential barriers to reattributing medically unexplained symptoms, J. Gen. Intern. Med. 24 (4) (2009) 443–449 (PubMed PMID: 19089505).
[36] F.C. Dwamena, J.S. Lyles, R.M. Frankel, R.C. Smith, In their own words: qualitative study of high-utilising primary care patients with medically unexplained symptoms, BMC Fam. Pract. 10 (2009) 67 (PubMed PMID: 19772582).
[37] K.C. Ringsberg, G. Krantz, Coping with patients with medically unexplained symptoms: work-related strategies of physicians in primary health care, J. Health Psychol. 11 (1) (2006) 107–116 (PubMed PMID: 2006065277).
[38] A. Ring, C. Dowrick, G. Humphris, P. Salmon, Do patients with unexplained physical symptoms pressurise general practitioners for somatic treatment? A qualitative study, Br. Med. J. 328 (7447) (2004) 1057–1060 (PubMed PMID: 2004197786).
[39] C. Lundh, K. Segesten, C. Bjorkelund, To be a helpless helpoholic–GPs' experiences of women patients with non-specific muscular pain, Scand. J. Prim. Health Care 22 (4) (2004) 244–247 (PubMed PMID: 15765641).
[40] B. van den Berg, C.J. Yzermans, P.G. van der Velden, R.K. Stellato, E. Lebret, L. Grievink, Are physical symptoms among survivors of a disaster presented to the general practitioner? A comparison between self-reports and GP data, BMC Health Serv Res. 7 (150) (2007) (PubMed PMID: 17888144).
[41] T. Kappen, S. van Dulmen, General practitioners' responses to the initial presentation of medically unexplained symptoms: a quantitative analysis, Biopsychosoc Med. 2 (2008) 22, http://dx.doi.org/10.1186/1751-0759-2-22 (PubMed PMID: 19014616; PubMed Central PMCID: PMC2596168).
[42] D. Jobst, Family doctors — how would they diagnose a somatoform disorder? [German], Z Allgemeinmed. 82 (5) (2006) 209–213 (PubMed PMID: 2006247769).
[43] L. Wileman, C. May, C.A. Chew-Graham, Medically unexplained symptoms and the problem of power in the primary care consultation: a qualitative study, Fam. Pract. 19 (2) (2002) 178–182 (PubMed PMID: 11906984).
[44] R. Raine, S. Carter, T. Sensky, N. Black, General practitioners' perceptions of chronic fatigue syndrome and beliefs about its management, compared with irritable bowel syndrome: qualitative study, BMJ 328 (7452) (2004) 1354–1357, http://dx.doi.org/10.1136/bmj.38078.503819.EE (PubMed PMID: 15169743; PubMed Central PMCID: PMC420289).
[45] D. Wainwright, M. Calnan, C. O'Neil, A. Winterbottom, C. Watkins, When pain in the arm is 'all in the head': the management of medically unexplained suffering in primary care, Health Risk Soc. 8 (1) (2006) 71–88 (PubMed PMID: 2006115267).
[46] M. Calnan, D. Wainwright, C. O'Neill, A. Winterbottom, C. Watkins, Making sense of aches and pains, Fam. Pract. 23 (1) (2006) 91–105, http://dx.doi.org/10.1093/fampra/cmi077 (PubMed PMID: 16107493).
[47] C.A. Chew-Graham, G. Cahill, C. Dowrick, A. Wearden, S. Peters, Using multiple sources of knowledge to reach clinical understanding of chronic fatigue syndrome, Ann. Fam. Med. 6 (4) (2008) 340–348, http://dx.doi.org/10.1370/afm.867 (PubMed PMID: 18626034; PubMed Central PMCID: PMC2478494).
[48] C.F. Dowrick, A. Ring, G.M. Humphris, P. Salmon, Normalisation of unexplained symptoms by general practitioners: a functional typology, Br. J. Gen. Pract. 54 (500) (2004) 165–170 (PubMed PMID: 2004101749).
[49] J.M. Aiarzaguena, G. Grandes, A. Salazar, I. Gaminde, A. Sanchez, The diagnostic challenges presented by patients with medically unexplained symptoms in general practice, Scand. J. Prim. Health Care 26 (2) (2008) 99–105 (PubMed PMID: 18570008).
[50] N.J. Perron, P. Hudelson, Somatisation: illness perspectives of asylum seeker and refugee patients from the former country of Yugoslavia, BMC Fam. Pract. 7 (10) (2006) (PubMed PMID: 16480514).
[51] T.A. Nordin, A.J. Hartz, R. Noyes Jr., M.C. Anderson, M.E. Rosenbaum, P.A. James, et al., Empirically identified goals for the management of unexplained symptoms, Fam. Med. 38 (7) (2006) 476–482 (PubMed PMID: 16823672).
[52] A.J.E. Dirkzwager, P.F.M. Verhaak, Patients with persistent medically unexplained symptoms in general practice: characteristics and quality of care, BMC Fam. Pract. 8 (33) (2007) (PubMed PMID: 2007306475).
[53] R.M. Epstein, C.G. Shields, S.C. Meldrum, K. Fiscella, J. Carroll, P.A. Carney, et al., Physicians' responses to patients' medically unexplained symptoms, Psychosom. Med. 68 (2) (2006) 269–276 (PubMed PMID: 2006237733).
[54] T.C. Olde Hartman, E. van Rijswijk, S. van Dulmen, E. van Weel-Baumgarten, L. PLBJ, C. van Weel, How patients and family physicians communicate about persistent medically unexplained symptoms. A qualitative study of video-recorded consultations, Patient Educ. Couns. 90 (2013) 354–360.
[55] P. Salmon, C.F. Dowrick, A. Ring, G.M. Humphris, Voiced but unheard agendas: qualitative analysis of the psychosocial cues that patients with unexplained symptoms present to general practitioners, Br. J. Gen. Pract. 54 (500) (2004) 171–176 (PubMed PMID: 2004101750).
[56] A. Ring, C.F. Dowrick, G.M. Humphris, J. Davies, P. Salmon, The somatising effect of clinical consultation: what patients and doctors say and do not say when patients present medically unexplained physical symptoms, Soc. Sci. Med. 61 (7) (2005) 1505–1515 (PubMed PMID: 2005320790).
[57] T.C. Olde Hartman, L.J. Hassink-Franke, P.L. Lucassen, K.P. Van Spaendonck, C. Van Weel, Explanation and relations. How do general practitioners deal with patients with persistent medically unexplained symptoms: a focus group study, BMC Fam. Pract. 10 (68) (2009) (PubMed PMID: 2009578599).
[58] P. Salmon, S. Peters, R. Clifford, W. Iredale, L. Gask, A. Rogers, et al., Why do general practitioners decline training to improve management of medically unexplained symptoms? J. Gen. Intern. Med. 22 (5) (2007) 565–571 (PubMed PMID: 17443362).
[59] P. Salmon, G.M. Humphris, A. Ring, J.C. Davies, C.F. Dowrick, Why do primary care physicians propose medical care to patients with medically unexplained symptoms? A new method of sequence analysis to test theories of patient pressure, Psychosom. Med. 68 (4) (2006) 570–577 (PubMed PMID: 2006415861).
[60] T. Woivalin, G. Krantz, T. Mantyranta, K.C. Ringsberg, Medically unexplained symptoms: perceptions of physicians in primary health care, Fam. Pract. 21 (2) (2004) 199–203 (PubMed PMID: 15020392).
[61] N.J. Perron, P. Hudelson, How do junior doctors working in a multicultural context make sense of somatisation? Swiss Med. Wkly. 135 (31–32) (2005) 475–479 (PubMed PMID: 16208585).
[62] R. Schaefert, G. Laux, C. Kaufmann, D. Schellberg, R. Bolter, J. Szecsenyi, et al., Diagnosing somatisation disorder (P75) in routine general practice using the International Classification of Primary Care, J. Psychosom. Res. 69 (3) (2010) 267–277 (PubMed PMID: 2010445373).
[63] S.S. O'Sullivan, B.J. Sweeney, B. McNamara, The opinion of the general practitioner toward clinical management of patients with psychogenic nonepileptic seizures, Epilepsy Behav. 8 (1) (2006) 256–260 (PubMed PMID: 16290241).
[64] C. May, G. Allison, A. Chapple, C. Chew-Graham, C. Dixon, L. Gask, et al., Framing the doctor–patient relationship in chronic illness: a comparative study of general practitioners' accounts, Sociol. Health Illn. 26 (2) (2004) 135–158 (PubMed PMID: 15027982).
[65] C. Dowrick, L. Gask, J.G. Hughes, H. Charles-Jones, J.A. Hogg, S. Peters, et al., General practitioners' views on reattribution for patients with medically unexplained symptoms: a questionnaire and qualitative study, BMC Fam. Pract. 9 (46) (2008) (PubMed PMID: 2008435109).
[66] J. Greer, R. Halgin, Predictors of physician–patient agreement on symptom etiology in primary care, Psychosom. Med. 68 (2) (2006) 277–282 (PubMed PMID: 2006237734).
[67] M. Rosendal, F. Bro, I. Sokolowski, P. Fink, T. Toft, F. Olesen, A randomised controlled trial of brief training in assessment and treatment of somatisation: effects on GPs' attitudes, Fam. Pract. 22 (4) (2005) 419–427 (PubMed PMID: 2005472864).
[68] N. Mik-Meyer, A.R. Obling, The negotiation of the sick role: general practitioners' classification of patients with medically unexplained symptoms, Sociol. Health Illn. 34 (7) (2012) 1025–1038 (PubMed PMID: 22384857).
[69] J. Bowen, D. Pheby, A. Charlett, C. McNulty, Chronic fatigue syndrome: a survey of GPs' attitudes and knowledge, Fam. Pract. 22 (4) (2005) 389–393, http://dx.doi.org/10.1093/fampra/cmi019 (PubMed PMID: 15805128).
[70] J.K. Soler, I. Okkes, Reasons for encounter and symptom diagnoses: a superior description of patients' problems in contrast to medically unexplained symptoms (MUS), Fam. Pract. 29 (3) (2012) 272–282 (PubMed PMID: 2012319087).
[71] L. Frostholm, E. Ornbol, H.S. Hansen, F. Olesen, J. Weinman, P. Fink, Which is more important for outcome: the physician's or the patient's understanding of a health problem? A 2-year follow-up study in primary care, Gen. Hosp. Psychiatry 32 (1) (2010) 1–8 (PubMed PMID: 2010022562).
[72] P. Salmon, A. Ring, C.F. Dowrick, G.M. Humphris, What do general practice patients want when they present medically unexplained symptoms, and why do their doctors feel pressurized? J. Psychosom. Res. 59 (4) (2005) 255–260, http://dx.doi.org/10.1016/j.jpsychores.2005.03.004 (discussion 61-2, PubMed PMID: 16223629).

[73] K.A. Leiknes, A. Finset, T. Moum, I. Sandanger, Methodological issues concerning lifetime medically unexplained and medically explained symptoms of the Composite International Diagnostic Interview: a prospective 11-year follow-up study, J. Psychosom. Res. 61 (2) (2006) 169–179 (PubMed PMID: 16880019).
[74] G. Schneider, G. Heuft, Medically unexplained and somatoform complaints and disorders in the elderly: a systematic review of the literature. [German]. [References], Z. Psychosom. Med. Psychother. 57 (2) (2011) 115–140.
[75] G. Hanel, P. Henningsen, W. Herzog, N. Sauer, R. Schaefert, J. Szecsenyi, et al., Depression, anxiety, and somatoform disorders: vague or distinct categories in primary care? Results from a large cross-sectional study, J. Psychosom. Res. 67 (3) (2009) 189–197 (PubMed PMID: 2009423157).
[76] L. Gask, C. Dowrick, P. Salmon, S. Peters, R. Morriss, Reattribution reconsidered: narrative review and reflections on an educational intervention for medically unexplained symptoms in primary care settings, J. Psychosom. Res. 325-34 (2011).
[77] P. Salmon, The potentially somatizing effect of clinical consultation, CNS Spectr. 11 (3) (2006) 190–200 (PubMed PMID: 2006147778).
[78] M.B. Risør, Illness explanations among patients with medically unexplained symptoms: different idioms for different contexts, Health (London) 13 (5) (2009) 505–521, http://dx.doi.org/10.1177/1363459308336794 (PubMed PMID: 19696133).
[79] A. Frances, Resuscitating the biopsychosocial model, Lancet Psychiatry 1 (2014) 496–497.