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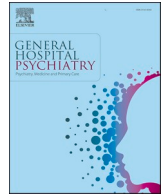
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Review article

Barriers and facilitators to implementing interventions for medically unexplained symptoms in primary and secondary care: A systematic review

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ABSTRACT

Objective: To integrate existing literature on barriers and facilitators to implementing interventions for Medically Unexplained Symptoms (MUS) in primary and secondary care.

Method: Systematic review following PRISMA guidelines. A search of PsychINFO/Pubmed/Web of Science was performed to select studies focusing on MUS-interventions and implementation. All included papers were checked for quality and bias. A narrative synthesis approach was used to describe the included papers by implementation level, ranging from the specific intervention to the broader economic/political context.

Results: 20 (quantitative/qualitative/mixed design) papers were included, but the quantitative studies especially, lacked methodological quality, with possible publication bias as a result. Results showed that the *intervention* needs to be acceptable and in line with daily practice routines. The *professional's* attitude and skills are important for implementation success, as well as for overcoming problems in the professional-patient interaction. If *patients* stick to finding a somatic cause, this hampers implementation. A lack of time is a frequently mentioned barrier at the *organizational* level. Barriers/facilitators at the *social context* level and at the *economic/political* level were barely reported on in the included papers.

Conclusion: Results were integrated into an existing implementation model, as an example of how MUS-interventions can be successfully implemented in practice.

1. Introduction

Medically Unexplained Symptoms (MUS) are persistent physical symptoms for which no conclusive organic explanation can be found. MUS are present in about 40–50% of all primary care consultations [19] and about 50% of all secondary care consultations [30]. These symptoms can cause mild to severe limitations in the patient's daily life functioning, reflected in e.g. lowered health-related quality of life scores [52], and work problems [36].

Although there are evidence-based treatments available for MUS [13], healthcare professionals find it difficult to implement these interventions in clinical practice. In general, only 14% of new evidence-based interventions may eventually become part of routine clinical practice [50]. 'Implementation' refers to the planned introduction of (evidence-based) interventions, with the aim of making these an

integrated part of clinical practice routines [28]. Implementation of interventions is most likely to be successful when they are tailored to the healthcare context, by taking into account the specific care setting and needs of the patient population when developing implementation strategies [17]. In fact, choosing successful implementation strategies requires knowledge of barriers and facilitators for each level of healthcare [48].

In the case of MUS, there may be specific concerns regarding the setting of care. In fact, the implementation of MUS-interventions may be hampered by the prevailing dualism of somatic and psychological care, while MUS are pre-eminently at the interface between these healthcare fields. In a systematic study of barriers to the diagnosis of somatoform symptoms [27], barriers were found that may also be relevant for the implementation of MUS-interventions, such as communication barriers, and barriers concerning medical ideology. Barriers and facilitators to

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implementing MUS-interventions in clinical care, however, have not been studied systematically before.

Research in depression emphasizes the importance of studying barriers for diagnosis and for implementation of interventions separately. A study focusing on care for men with a depressive disorder [39] reported that barriers to depression diagnosis included holding on to male role models, and covering up depressive symptoms with other problematic behaviors, such as excessive alcohol consumption. Barriers to implementing depression interventions included the tendency of these men to want to solve problems themselves, and their ambivalence towards treatment [39]. Other barriers to implementing depression interventions included non-compliance to the treatment, professionals not following treatment guidelines, and psychosocial problems that prevented the patient from engaging in treatment [31]. The latter study also showed that professionals identified the patient's resistance to a depression diagnosis to be a barrier to the successful implementation of depression interventions. Thus, while difficulties in diagnosing depression may well affect the implementation success of depression interventions, specific barriers need to be considered when implementing a new intervention in clinical care [5].

Therefore, in the current systematic review, we aim to integrate existing literature on barriers and facilitators to implementing interventions for MUS in primary and secondary care.

2. Methods

2.1. Study design

A systematic review was performed to study barriers and facilitators to implementing MUS-interventions in primary and secondary care. This study was registered in PROSPERO (<https://www.crd.york.ac.uk/prosp/ero/>; registration number CRD42018098564), and was conducted using the Cochrane collaboration's Covidence tool (www.covidence.org) in order to ensure that the study was carried out according to the PRISMA guidelines ([23]; www.prisma-statement.org).

2.2. Search strategy and data sources

In close collaboration with an information specialist from the Central Medical Library of the University Medical Center Groningen, we composed a search strategy consisting of search terms related to *MUS and somatic symptom disorder* (SSD; i.e. physical symptoms that cause severe functional limitations and are accompanied by disproportional emotional expressions, cognitions, and/or behaviors) on the one hand, and search terms referring to *implementation* on the other hand.

Search terms related to *MUS/SSD* (e.g. “medically unexplained symptoms”, “somatic symptom disorder”) were based on an existing search strategy that was previously described in the Dutch multidisciplinary guideline for the treatment of MUS and somatoform disorders [6]. Search terms related to functional syndromes (e.g. fibromyalgia, irritable bowel syndrome, chronic fatigue syndrome) were deleted from this search strategy. The search strategy was extended with search terms related to SSD [4]. The search string related to *implementation* was constructed using a broad definition of implementation, e.g. including health knowledge, health care policy, and health literacy. The search terms related to *MUS/SSD* and *implementation* were connected by the Boolean operator AND. This search strategy was specified and optimized for each of the data sources, i.e. PsycINFO, Pubmed and Web of Science. The results described in the current paper are based on a search conducted on February 11th, 2018 using our final search string (Supplementary file A). Although the original plan was to also study barriers and facilitators to interventions for SSD, we did not find any papers specifically focusing on SSD. Therefore, the results discussed in the current paper only apply to MUS.

2.3. Study selection

All results from our search were uploaded in Covidence. Two researchers (DH, LB) independently screened all papers on title and abstract using well-defined in- and exclusion criteria; in case of disagreement, a third researcher (JR) was consulted. Included were papers that 1) referred to MUS (including DSM-IV classifications of hypochondria and conversion disorder; [3]); 2) described barriers and/or facilitators to the implementation of one or more MUS-interventions. Exclusion criteria were 1) studies about Munchhausen by proxy, body dysmorphic disorder, or factitious disorder; 2) non-original studies, i.e. systematic/narrative reviews, book chapters; 3) (cost-) effectiveness studies; 4) studies in other languages than English and Dutch. No selection was made on study design (e.g., quantitative, qualitative, mixed design).

After selection based on title and abstract, full text versions of the papers were retrieved; if these versions were not available at the university library, authors of the papers were approached via email to share their full-text paper. Full-text screening was independently performed by DH and LB, using the previously described in- and exclusion criteria and consultation from a third researcher (JR) in case of discrepancies. Main reasons for exclusion were registered.

2.4. Data extraction and synthesis

Data extraction was independently performed on the selected full-text papers by two researchers (DH, LB), and included extraction of data on authors, year of publication, study aim(s), study population, research method, type of MUS-intervention, implementation barriers and/or facilitators, and healthcare setting (primary and/or secondary care). After data extraction, results were discussed until consensus was reached.

Barriers and facilitators to the implementation of MUS-interventions were consecutively identified, categorized by two researchers (DH, LB) using the implementation levels described by Grol and Wensing [18] (i.e. intervention, professional, patient, organizational context, social context, economic/political context), and described as the main results of our systematic analysis, using a narrative synthesis approach.

2.5. Quality and bias assessment

Quality- and bias assessment was performed using the five levels of evidence as described by the Oxford Centre for Evidence-Based Medicine [32], with lower levels meaning higher quality of the scientific study. Since we included papers with several study designs, all papers were thereafter scored using the relevant sections of the Mixed Methods Appraisal Tool (MMAT) [35], a quality assessment tool that can be applied to quantitative, qualitative, and mixed-methods studies. Since it is discouraged to calculate an overall MMAT score, results of the quality assessment are presented for each criterion separately. Both the quality and bias assessments were performed independently by two researchers (DH, LB); in case of conflicting assessment, this was discussed until consensus was reached.

3. Results

3.1. Search results

We retrieved a total of 5786 articles (PsycINFO: 701; Pubmed: 2728; Web of Science: 2357). After checking for duplicates (using Covidence, Refworks, and manual check of duplicates), 5162 papers were available for title and abstract screening (Fig. 1). Based on this screening, 149 papers were eligible for full-text screening. After full-text screening, 21 papers met our in- and exclusion criteria. One paper [24] could not be assessed using the MMAT tool since it neither had a quantitative or qualitative, nor a mixed study design (i.e. only the description of an

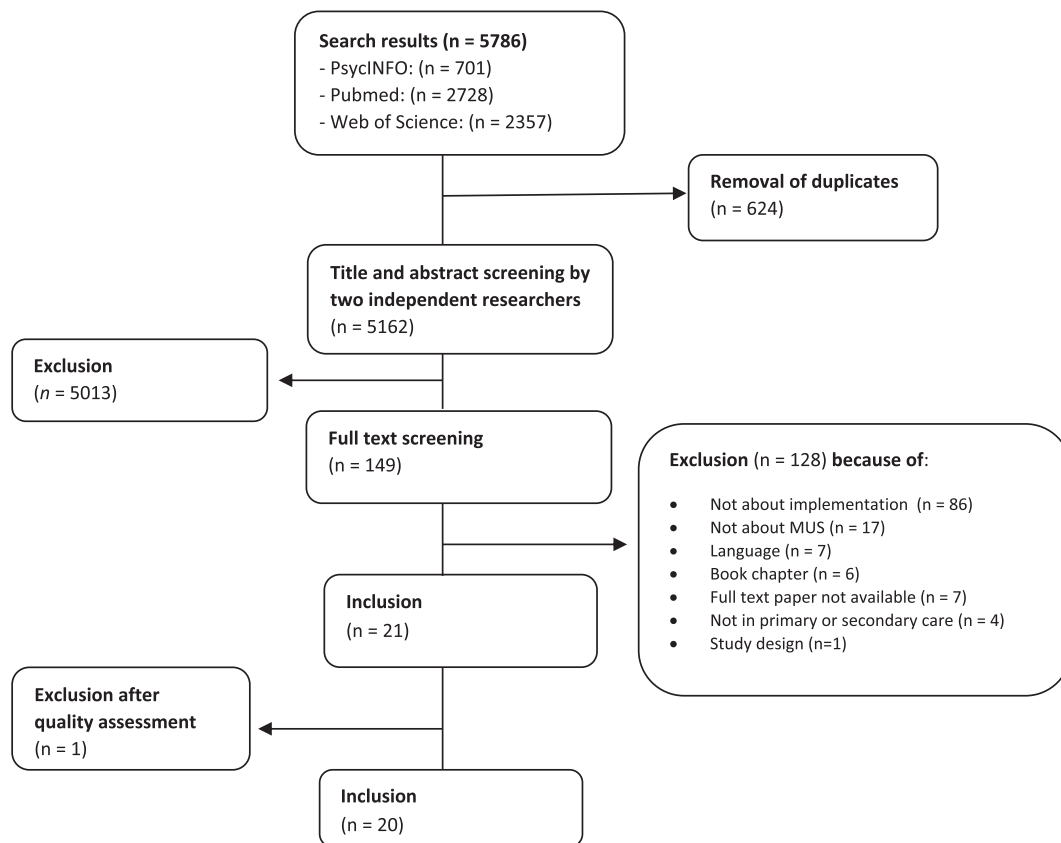


Fig. 1. PRISMA flow diagram.

implementation process) and was therefore removed from the final study selection, resulting in a final study selection of 20 papers. This final selection of papers included 11 quantitative observational study designs, 7 qualitative observational study designs, and 2 mixed-methods observational designs. 11 studies were conducted in primary care, 6 studies were conducted in secondary care, 2 studies were conducted in both primary and secondary care, and 1 study was not tied to a specific healthcare setting. Most studies described the implementation of a general or unspecified psychological intervention (12 studies); 4 studies specifically focused on reattribution training, 3 studies focused on cognitive behavioural therapy, and 1 study focused on communication training.

3.2. Quality and risk of bias assessment

The final 20 papers were subjected to quality and risk of bias assessment. See Table 1 for a complete overview of the level of the quality and risk of bias scores per included study. While selection bias due to participant recruitment was minimized in 10/11 quantitative studies, appropriate measurements were identified in 7/11 studies, groups were comparable in 5/11 studies, and data were sufficiently completed in 6/11 studies. Of the 7 qualitative studies, 6 met all four quality criteria, while one study sufficiently considered the data collection context, but failed to use relevant data sources and data analysis processes, and did not consider how findings related to researcher's influence. With regard to the quality criteria for mixed-method studies, the relevance of the mixed-method approach, the relevance of the integration of qualitative and quantitative data, and the consideration of the associated limitations, 1/2 study met all of these

criteria while the other one met none of them.

3.3. Barriers and facilitators to implementing MUS/SSD-interventions in primary and secondary care

Table 2 gives a complete overview of the results about barriers and facilitators to the implementation of MUS/SSD-interventions in primary and secondary care. Results on barriers and facilitators will be discussed in more detail below, grouped per implementation level [18,49]. In general, barriers at the professional level were, along with barriers at the patient level, most frequently reported, while barriers at the social context level, and economic/political level were least often described. In general, facilitators were less frequently described than barriers, with the exception of facilitators within the organizational context. No facilitators were described at the social context level, and economic/political level. Supplementary files B and C show the results by healthcare setting (secondary care, primary care) or by study design (quantitative, qualitative, mixed).

3.3.1. Intervention

Barriers - When developing the intervention, it seems important to adopt a collaborative, interdisciplinary approach [10] to ensure that the intervention is *acceptable* for those (e.g. medical and psychological) disciplines that are implementing the intervention in clinical practice. It gets more difficult to implement the intervention in the long term when it is not in line with *daily practice routines* [7].

Facilitators- Implementation of the intervention is easier when the intervention provides *structure* or a 'road map' [2,14], and when the intervention demonstrates its *effectiveness* in daily practice [8]. Also, an

Table 1
Complete overview of the level of the quality and risk of bias scores per included study.

	First author	Year of publication	Level of evidence*	MMAT**													
					Checklist	Quantitative non-randomized	Participants are recruited in a way that minimizes selection bias	Measurements are appropriate regarding the exposure/intervention and outcome	Participants in the groups being compared are comparable	Completeness of outcome data and acceptable response rate	Sources of qualitative data are relevant to address the research question	Process for analyzing qualitative data is relevant to address the research question	Appropriate consideration is given to how findings relate to the context in which the data were collected	Appropriate consideration is given to how findings relate to researcher's influence	Mixed methods research question is relevant to address the qualitative and quantitative research questions	Integration of qualitative and quantitative data is relevant to address the research question	Appropriate consideration is given to the limitations associated with integration
	1 Aatti et al.	2016	4	Quantitative	+	+	+	+									
	2 Aiarzaguen et al.	2009	4	Qualitative					+	+	+	+					
	3 Blankenstein et al.	2002	4	Mixed-design										-	-	-	
	4 Brownell et al.	2016	4	Qualitative					+	+	+	+					
	5 Calpin et al.	2017	4	Quantitative	+	-	-	+									
	6 Cooper et al.	2017	4	Quantitative	+	-	+	-									
	7 De Schipper et al.	2014	4	Quantitative	+	-	-	-									
	8 Dowrick et al.	2008	4	Mixed-design										+	+	+	
	9 Furness et al.	2009	4	Qualitative					-	-	+	-					
	10 Garcia-Campayo et al.	1998	4	Quantitative	+	+	-	-									
	11 Husain et al.	2011	4	Quantitative	+	-	+	+									
	12 McCrae et al.	2015	4	Qualitative					+	+	+	+					
	13 Moulin et al.	2015	4	Qualitative					+	+	+	+					
	14 O'Sullivan et al.	2006	4	Quantitative	+	+	-	-									
	15 Peters et al.	2009	4	Qualitative					+	+	+	+					
	16 Salmon et al.	2007	4	Qualitative					+	+	+	+					
	17 Sirri et al.	2017	4	Quantitative	+	+	+	+									
	18 Speckens et al.	1995	4	Quantitative	+	+	+	+									
	19 Van der Feltz-Cornelis et al.	1996	4	Quantitative	+	+	-	+									
	20 Walker et al.	1999	4	Quantitative	-	+	-	-									

+ = study meets this criterion; - = study does not meet this criterion; Grey box means N/A.

* For more information on the level of evidence score, please see <http://www.cebm.net/2016/05/ocebm-levels-of-evidence>.

** For more information on the MMAT, please see [35].

Table 2

Results of the systematic analysis of barriers and facilitators to the implementation of MUS/SSD-interventions in primary and secondary care.

	First author	Year of publication	Study aim	Research design (qualitative/quantitative/mixed)	Research method	Study population (n)	Healthcare setting	Intervention under study	Implementation Barriers (implementation level*)	Implementation Facilitators (implementation level*)
1.	Aatti et al.	2016	To determine: 1) Level of general knowledge of Psychogenic Nonepileptic Seizures (PNES) of French psychiatrists and psychiatric residents; 2) Their perceptions on PNES; 3) The relationship between level of education and knowledge of PNES, and level of experience of case management and perceptions of PNES.	Quantitative	Online questionnaires	Psychiatrists (in residence) (n = 963)	Secondary care	Psychiatric treatment for PNES	1) Professional's believe that psychiatric intervention is ineffective for the treatment of PNES. (Pr)	1) Have followed a training for PNES. (Pr)
2.	Aiarzaguena et al.	2009	To determine: 1) GPs' attitudes towards patients with MUS; 2) Their experience, expectations and the utility of the communication techniques that were proposed; 3) The feasibility of implementing these techniques.	Qualitative	Focus groups	General Practitioners (n = 26)	Primary care	Intervention aimed at improving GP's communication techniques	1) Difficulties with behavioural change in patients with MUS. (Pa) 2) Lack of time during consultation. (O) 3) Lack of attention for treating MUS during the GP training program, leads to a lack of skills. (Pr)	1) Treatment is applicable to other patient groups with psychosocial problems. (I) 2) GPs participated in proper training, resulting in a better understanding of somatizing patients. (Pr) 2) Intervention is clearly structured. (I)
3.	Blankenstein et al.	2002	To determine: 1) The feasibility of the modified reattribution model in general practice; 2) GPs performance using the modified reattribution model.	Mixed-methods	Analysis of GP consultations and in-depth interviews.	GPs (n = 10)	Primary care	Reattribution training for long-standing somatization, as provided by GPs	1) Treatment techniques deviate from normal working style. (I) 2) GPs feel incompetent to apply the treatment. (Pr)	1) Possibility to take a refreshment course and/or intervention meetings. (O)
4.	Brownell et al.	2016	To determine: 1) Clinical practitioners' experiences of dealing with patients with MUPS within their clinical practices.	Qualitative	In-depth interviews	GPs (n = 12) and medical specialists (n = 18)	Primary and secondary care	Interventions for MUS (in general)	1) The physician's tendency to keep looking for a medical diagnosis. (Pr)	1) The intervention shows in practice that it is able to improve the patient's quality of life. (I)
5.	Calpin et al.	2017	To determine: 1) The expectations of chronic pain patients and their treating physicians for what is most important to them to achieve during the first pain clinic visit; 2) Which outcomes or process indicators from the clinic visit would be satisfying and dissatisfying to both patients and physicians; 3) To compare any	Quantitative	Questionnaires	Chronic pain patients (n = 100) and pain specialists (n = 10)	Secondary care	Chronic pain treatment in a pain clinic	1) Different expectations between patients and doctors regarding treatment of chronic pain. (Pa, Pr)	N/A

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Table 2 (continued)

First author	Year of publication	Study aim	Research design (qualitative/quantitative/mixed)	Research method	Study population (n)	Healthcare setting	Intervention under study	Implementation Barriers (implementation level*)	Implementation Facilitators (implementation level*)	
6.	Cooper et al.	2017	discordance in the expectations of both parties as well as satisfying and dissatisfying clinic outcomes, and any correlations with patient characteristics. 1) To provide an outline of how a brief psychotherapy service for MUS has been implemented across two community based academic family medicine clinics; 2) To describe a service evaluation project of the psychotherapy service.	Quantitative	Questionnaires	Patients with MUS (n = 18) and GPs (n = 7)	Primary care	Psychotherapy service for MUS	N/A	1) Collaborative, multidisciplinary, approach when developing the intervention. (I) 2) Deliver regular teaching workshops. (O) 3) Belief that the psychotherapy service is acceptable. (Pa).
7.	De Schipper et al.	2014	To determine: 1) The current opinions on functional neurological symptoms (FNS) in the Netherlands among those who diagnose and initiate treatment.	Quantitative	Online questionnaire	Neurologists (n = 343) and psychiatrists (n = 64)	Secondary care	Treatment for FNS (in general)	N/A	1) The neurologist's belief that psychiatric care should be part of the treatment of FNS. (Pr)
8.	Dowrick et al.	2008	To determine: 1) The views of participating practitioners on patients with MUS; 2) The value of and barriers to the implementation of reattribution treatment in practice.	Mixed-methods	Questionnaires and semi-structured interviews	GPs (n = 70 for the questionnaires; n = 24 for the interviews)	Primary care	Reattribution treatment for MUS	1) Lack of supervision when using the treatment. (O) 2) Patients sticking to a somatic cause for their symptoms. (Pa) 2) Patient's learned behavior. (Pa) 3) Patient's secondary gain of MUS. (Pa) 4) Patient choosing not to visit the same GP every time / lack of continuity. (Pa) 5) GP's lack of communication skills in managing patients with MUS. (Pr) 6) GP's (negative) emotional state during consultation. (Pr) 7) GP's fear of encouraging dependency when offering this treatment. (Pr) 8) Lack of time to concentrate on the	1) Financial rewards or payment. (O) 2) Treatment offers structure. (I)

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Table 2 (continued)

First author	Year of publication	Study aim	Research design (qualitative/quantitative/mixed)	Research method	Study population (n)	Healthcare setting	Intervention under study	Implementation Barriers (implementation level*)	Implementation Facilitators (implementation level*)	
9.	Furness et al.	2009	To explore: 1) Attitudes, perceptions and experiences of hospital pediatric staff caring for children with MUS.	Qualitative	Focus groups and in-depth interviews	Staff of the pediatrics department, including nurses and consultants (n = 12)	Secondary care	Treatment of MUS in children (in general)	intervention. (O) 9) Referral to secondary care during treatment. (O) 10) The medical-legal context the GP is working in. (E) 1) Parents sticking to finding a medical diagnosis for their children's MUS. (Pa) 2) Lack of time. (O) 3) Absence of a structured protocol for treatment of MUS. (O)	1) Good communication and motivation skills. (Pr) 2) Training of treatment/referral skills. (Pr) 3) Joint treatment approach between different disciplines. (O)
10.	Garcia-Campayo et al.	1998	To assess: 1) The attitudes of Spanish GPs towards the care of somatizing patients; 2) The degree of involvement that GPs want to adopt in the care of somatizing patients.	Quantitative	Questionnaires	GPs (n = 70)	Primary care	(Psychological) treatment for somatizing patients	1) GPs refusing to give psychological support to somatizing patients. (Pr) 2) Patients with MUS evoke negative emotions, such as frustration, among GPs. (Pr)	1) GPs and mental health professionals have a shared responsibility regarding the management of MUS-patients. (O)
11.	Husain et al.	2011	1) To explore GPs' attitudes towards MUS in Karachi, Pakistan; 2) To determine whether GPs' attitudes towards MUS are similar to those of GPs in the developed world.	Quantitative	Questionnaire	GPs (n = 429)	Primary care	(Psychological) treatment for patients with MUS and somatization/somatization disorder	1) GP's belief that there is no effective treatment available for somatization/somatization disorder. (Pr)	1) GP's belief that counseling and providing psychological interventions for MUS is a GP's task. (Pr)
12.	McCrae et al.	2015	To determine: 1) Feasibility and acceptability of cognitive behavioural interventions for MUS and related training interventions from the perspectives of project leaders and key practitioners, focusing on: - Interventions and pathways - Access and utilization - Staff training and supervision.	Qualitative	Semi structured interviews	Project leaders, psychological wellbeing practitioners, and high-intensity workers (n = 43)	Primary care and secondary care	(Training courses for) Cognitive behavioural interventions for people with long-term medical conditions and MUS	1) Professional's use of psychiatric terminology. (Pr) 2) Stigma surrounding psychological interventions, especially for people from minority ethnic cultures. (S) 3) Patient's language and cultural background. (Pa) 4) Professional's limited confidence and skills for providing treatment for MUS. (Pr)	N/A
13.	Moulin et al.	2015	To determine: 1) The experiences with, and perceptions of, the	Qualitative	Focus groups and in-depth interviews	Adolescents with MUS (n = 10)	Secondary care	Treatment of MUS in adolescents (in general)	1) Stigma surrounding visiting a psychiatrist for MUS. (S)	1) Patient's belief that psychological treatment

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Table 2 (continued)

First author	Year of publication	Study aim	Research design (qualitative/quantitative/mixed)	Research method	Study population (n)	Healthcare setting	Intervention under study	Implementation Barriers (implementation level*)	Implementation Facilitators (implementation level*)
		healthcare of adolescents with MUS and their parents.			and their parents (n = 16)			2) Patients and their parents sticking to finding a somatic cause for their physical symptoms. (Pa) 3) Patient's fear of side effects when using medication. (Pa)	can help when coping with MUS. (Pa)
14. O'Sullivan et al.	2006	To determine: 1) The level of understanding of the diagnosis of PNES among patients' GPs, their opinions of the diagnosis and its management options; 2) The role they feel the GP should play in the overall management of PNES.	Quantitative	Questionnaire	GPs (n = 23)	Primary care	Psychological treatments for PNES (in general)	1) GP's belief that psychological interventions are ineffective for the treatment of PNES. (Pr) 2) GPs feel uncomfortable referring patients with PNES to psychological treatments. (Pr)	N/A
15. Peters et al.	2009	To determine: 1) Potential barriers to reattribution and the improvement of clinical outcome by analyzing patients' experiences of consultations; 2) If barriers are particular to the reattribution model or to MUS management in general.	Qualitative	Semi structured interviews	Patients with MUS (n = 23)	Primary care	Reattribution treatment for MUS, as provided by the GP	1) Experienced time pressure when discussing psychosocial problems. (Pa) 2) Patient's belief that GPs only have a limited role in the management of psychosocial problems. (Pa) 3) Patient's and GP's discomfort in discussing psychosocial problems. (Pa, Pr) 5) Patient's simplification of the symptoms. (Pa) 6) The GP's simplification of the patient's needs. (Pr)	N/A
16. Salmon et al.	2007	To identify: 1) How GPs' attitudes to patients with MUS might inhibit their participation with training to improve management.	Qualitative	In-depth interviews	GPs (n = 33)	Primary care	Reattribution training for MUS, as provided by GPs	1) GP's negative and dismissing attitudes to patients. (Pr) 2) GP's devaluation of psychological treatment skills. (Pr)	1) GP's empathic attitude towards patients with MUS. (Pr)
17. Sirri et al.	2017	To explore: 1) GPs' clinical experience with MUS; 2) the relationship between the main features of GP's	Quantitative	Questionnaire	GPs (n = 347)	Primary care	Treatment of MUS (in general)	1) GP's lack of knowledge about the role of psychologists in the treatment of MUS. (Pr)	1) Extensive training about MUS. (Pr)

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Table 2 (continued)

First author	Year of publication	Study aim	Research design (qualitative/quantitative/mixed)	Research method	Study population (n)	Healthcare setting	Intervention under study	Implementation Barriers (implementation level*)	Implementation Facilitators (implementation level*)
18. Speckens et al.	1995	experience and gender, age, and length of practice To explore: 1) To what extent additional psychological treatment is needed for patients with MUS; 2) To what extent patients with MUS are willing to accept psychological treatment; 3) How somatizing patients who are willing to accept psychological treatment compare with those who are not.	Quantitative	Questionnaires	Patients with MUS (n = 79)	Secondary care	Psychological treatment (cognitive behavioural therapy) for MUS	N/A	1) Patient's belief that it is acceptable to receive psychological treatment for MUS. (Pa)
19. Van der Feltz-Cornelis et al.	1996	To explore: 1) The feasibility of a psychiatric consultation intervention for somatizing patients in primary care.	Quantitative	Questionnaires	Patients with a somatoform disorder (n = 46)	Primary care	Psychiatric consultation intervention for somatizing patients	N/A	1) Patient's belief that it is acceptable to receive psychological treatment for somatization. (Pa)
20. Walker et al.	1999	To determine: 1) Preference for treatment among individuals seeking help for hypochondriasis.	Quantitative	Questionnaire	Patients with hypochondria (n = 23)	Primary or Secondary care	Psychological treatment (cognitive behavioural therapy) and pharmacological treatment for hypochondria	N/A	1) Patient's belief that psychological treatment is more effective in treating hypochondria than pharmacological treatment. (Pa) 2) Patient's preference for receiving psychological treatment over pharmacological treatment. (Pa)

* I=Intervention; Pr = Professional; Pa = Patient; O=Organizational context; S=Social Context; E = Economic/political context.

intervention is easier to implement when it is applicable to multiple patient groups; i.e. not only to patients with MUS, but also to patients with psychosocial problems due to other (physical) complaints [2].

3.3.2. Professional

Barriers- Most of the barriers at the professional level were related to the professional's *attitude*. So, if professionals feel disengaged from the patient's complaints [40] this hinders implementation of MUS -interventions. The professional's beliefs and emotions seem to play a role in this; if the professional fears that offering psychological treatment will encourage dependency of the patient [14] or that the professional may overlook a medical diagnosis [8], this might interfere with successful implementation. More in general, if the professional does not feel well (emotionally) during consultation, he/she is more likely to use older strategies rather than new interventions [14]. Also, the feelings and thoughts that patients evoke in professionals are important for the implementation success, such as feelings of frustration [16], the idea that the MUS-patient has difficulties with changing his/her behavior [2,26], or the belief that the patient gets secondary gain from having MUS [14]. Obviously, believing that the psychological intervention is ineffective or unnecessary for the treatment of MUS [1,21,33] and refusing to give psychological treatment [16] are important barriers.

Other barriers were related to the *skills* of the professional. For instance, if professionals feel incompetent to apply the psychological treatment [7,25,40], to refer to psychological treatment [43], or if they feel unable to manage MUS [14] or to discuss psychosocial problems [34], this prevents successful implementation.

Finally, some studies describe barriers at the level of the *professional-patient interaction*, such as language barriers [7], including the professional's use of psychiatric terminology [25], and different treatment expectations between patients and doctors [9]. Patients, for example, reported that they were mainly in need of pain relief, while doctors seemed to be mainly focused on defining a clear pain management plan focused on coping.

Facilitators- Facilitators on the level of the professional include *knowledge* about MUS, by having followed a course on MUS [1,43], or by having been trained in communication and treatment skills [15]. Also, an empathic *attitude* towards MUS-patients [40] and a positive attitude towards providing psychological interventions for MUS [21,41] facilitate the implementation of MUS-interventions. It also helps when professionals feel responsible for the implementation [8,21], or if they believe that the intervention is effective for the treatment of MUS [43].

3.3.3. Patient

Barriers- If patients (or their parents in case of children and adolescents) *stick to finding a somatic cause* for the symptoms, this hampers the implementation of MUS-interventions, both according to professionals and patients/parents themselves [14,15,26]. *Patient-professional (communication) barriers* have been associated with implementation difficulties, such as problems with the patient's language/cultural background [25], the patients' simplification of the problems [34], or patients' belief that general practitioners (GPs) are unable to or have too little time to treat MUS [34]. In general, the previously described differences in treatment expectations between patients and professionals regarding the outcome of treatment for MUS might hamper the implementation of MUS-interventions [9]. Lastly, if patients visit multiple general practitioners within one practice [14], this is unhelpful for implementing interventions for MUS in primary care as continuity of care is important when treating MUS.

Facilitators- On the other hand, if patients believe that the intervention can help with dealing with MUS, and believe that it is acceptable to receive psychological treatment for MUS [10,26,44,46,47], this is helpful for the successful implementation of MUS-interventions.

3.3.4. Organizational context

Barriers- The most frequently mentioned barrier at the level of

organization is a *lack of time* for treating patients with MUS and implementing MUS-interventions [2,14,15]. Also, the *absence of a structured protocol or procedure* for the specific treatment of MUS in secondary care [15] seems unhelpful. Another barrier is the *lack of supervision* when using or applying the treatment [14].

Facilitators- In line with this, it appears that if professionals have the ability to take e.g. *refreshment courses or peer coaching* sessions regarding the use of the intervention [7,10], this is helpful for the implementation of the MUS-intervention. Moreover, a *shared management framework* or a joint (interdisciplinary) approach towards the treatment of MUS [8,10,15,16,26] might facilitate the implementation of MUS-interventions in clinical practice. Also, appointing an implementation lead within the organization [15] or giving financial rewards when using the intervention [14] are possible facilitators.

3.3.5. Social context

Barriers- At the level of the social context, the *stigma* on psychiatric classifications (including somatoform disorders) and receiving psychological healthcare for MUS was considered an important barrier for the implementation of MUS-interventions [26], especially if patients were from minority ethnic cultures [25].

Facilitators- No facilitators were reported on the social context level.

3.3.6. Economic and political context

Barriers- According to the research of Dowrick et al. [14], the medical-political context is an important barrier as well. This study explains how GPs feel inclined to continue looking for a medical diagnosis, since missing a somatic diagnosis in the worst-case scenario may have a negative impact on their career, even if good psychological treatments are available [14].

Facilitators- No facilitators were reported on the level of the economic context.

4. Discussion

4.1. Main findings

Previous studies have shown that the implementation of evidence-based interventions is a process that may take many years [11]. However, interventions for MUS are urgently needed in clinical care to improve the patient's quality of life and to reduce healthcare costs [52]. Implementation research [17] shows that there is a greater chance of successful implementation if implementation strategies are adapted to the specific healthcare context. The present study provides guidance on which factors should be taken into account when implementing MUS-interventions. Fig. 2 provides a practical model for successfully implementing MUS-interventions in clinical practice based on the implementation roadmap of Grol and Wensing [18,49].

As shown, some barriers are difficult to tackle. First, many studies have demonstrated communication problems between professionals and MUS-patients (e.g. [37]). Evidence-based interventions have been developed to tackle these communication problems [20], but these interventions are also difficult to implement in clinical practice. The same applies to the professional's attitude with regard to MUS. Many studies have demonstrated the negative attitude towards patients with MUS (e.g. [43]), which is problematic, especially since these attitudes seem to be present early in the career [42,51]. Negative attitudes towards patients with MUS not only present as a barrier to diagnosing MUS [27], but once diagnosed, such attitudes also impede the implementation of interventions for patients with MUS.

Second, the negative feelings that patients evoke in professionals are well described in MUS-literature (e.g. [45]). Maintaining a good patient-doctor relationship is essential in the treatment of MUS, but this can only be achieved if the professional is well trained and empathic. This leaves the patient with MUS and the professional in a vicious circle, in which interventions are needed to tackle the symptoms, but the professional's

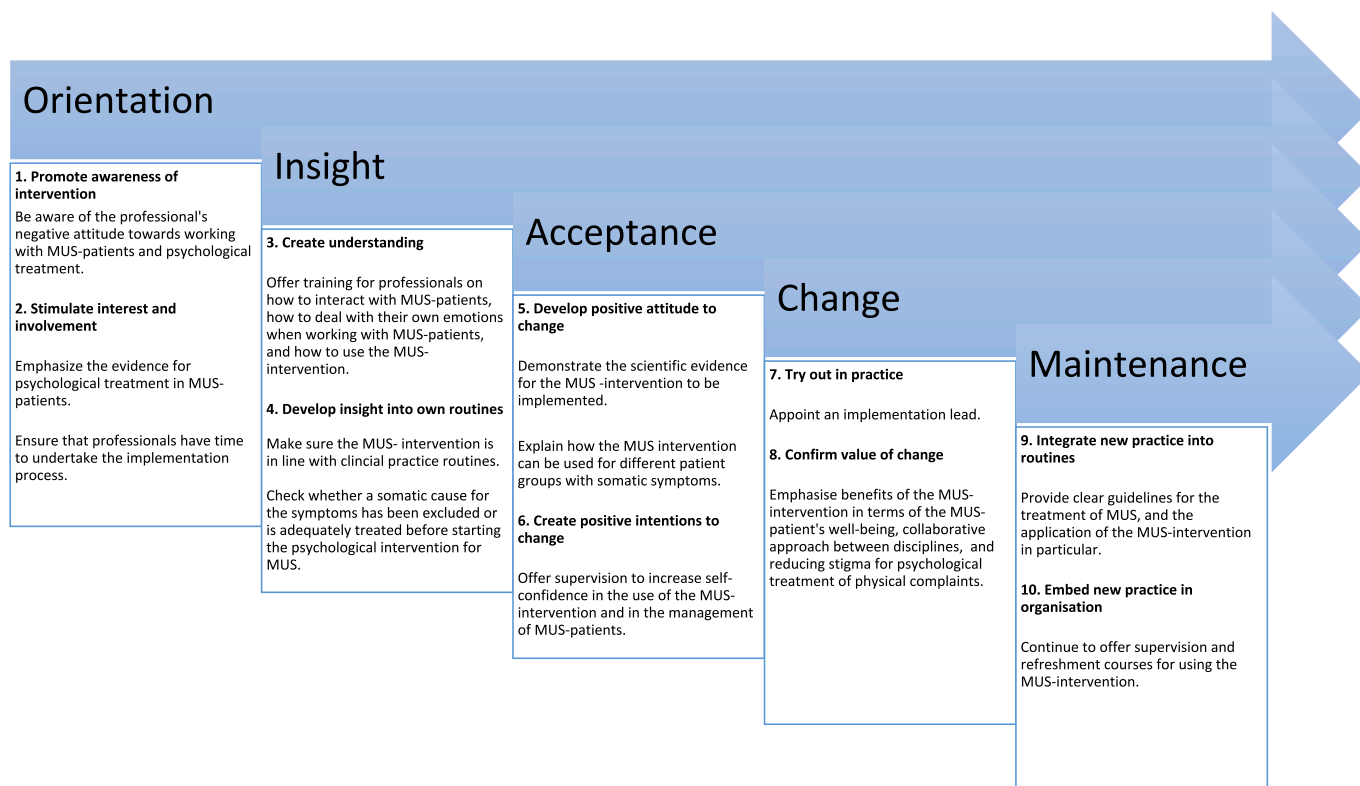


Fig. 2. Roadmap (based on Grol & Wensing, 2004) for the successful implementation of MUS-interventions in clinical practice.

emotions are hindering successful implementation of those interventions. A recent study additionally showed that the fear of overlooking a somatic disease, as well as patients' requests for symptom relief, are important barriers for professionals in both diagnosing and initiating treatment for persistent somatic complaints [22].

4.2. Comparison with barriers to diagnosis of MUS

Murray et al. [27] previously examined barriers to diagnosing MUS and somatoform symptoms in a systematic review of literature. In particular, barriers at the patient and professional level seem to overlap considerably with our current results, such as the negative attitude of professionals to work with MUS-patients and interaction problems between professionals and MUS-patients. The similarities in barriers are especially interesting since the overlap between the papers described by Murray et al. and those extracted for the current review is minimal (4/20). Attitude and interaction problems thus seem to hinder both appropriate diagnosis and implementation of interventions for MUS. When implementing MUS-interventions, however, e.g. the user-friendliness of the intervention as well as offering supervision when using the intervention seem important for improving implementation success. Please see supplementary file D for a complete comparison of barriers and facilitators.

4.3. Strengths and limitations of the current review

As far as we know, this is the first systematic literature review that describes knowledge on barriers and facilitators to the implementation of interventions for MUS. Strengths of the current study include our systematic way of working conform the PRISMA guidelines and the framework of Grol and Wensing [18,49]. Because we did not exclude papers based on study design, we were able to extract a wide range of barriers and facilitators. It is noteworthy that the studies with a qualitative approach provided especially rich information on barriers and facilitators in implementation (see supplementary file C). Also, we only

selected those studies that directly linked MUS-interventions to implementation barriers and facilitators.

However, there is also a downside to this. By selecting strictly, we may have overlooked factors that are also relevant to the implementation process. We did not select any (cost-)effectiveness studies, and therefore the role of scientific evidence for (cost-)effectiveness in implementation success is only briefly discussed in our current study. Due to the often brief descriptions of the interventions in the included papers and the low number of included papers, it was not possible to make a comparison between barriers and facilitators of different types of interventions. In terms of methodology, the included quantitative scientific studies showed limited methodological quality (i.e. no appropriate measurements, groups were not comparable, data sufficiently completed), with possible publication bias as a result. This could imply that only papers with strong positive or negative results are published, which means that the less pronounced factors influencing implementation are not addressed in this review. Also, the low methodological quality creates uncertainty about the significance of the current results. In general, barriers from qualitative studies should be validated in quantitative studies, while qualitative studies can elaborate on the mentioned barriers in quantitative studies. In general, barriers and facilitators might differ between countries, e.g. due to differences in the healthcare systems.

4.4. Implications for clinical care and future research

We believe that providing specific guidance in implementing MUS-interventions is of great importance, as clinicians often have limited training in implementing interventions and as implementation success is unfortunately limited in clinical practice. Also, clinicians have little time to consult key studies separately, which argues for a robust synthesis of findings. As the methodological quality of the included papers seems quite low, there is a need for high-quality studies about the implementation of MUS-interventions. From this perspective, the application of so-called effectiveness-implementation hybrid designs seems

promising [12] as they can simultaneously provide data on effectiveness of the interventions alongside evaluation of implementation factors. Furthermore, it would be interesting to use this review as a stepping stone towards drawing up a comprehensive implementation model for MUS-interventions, by merging all knowledge of separate studies on the presented barriers/facilitators and knowledge on (cost)effectiveness of MUS-treatments into one model for the implementation of MUS-interventions. An important finding of this review is that the role of social context and economic/political context has hardly been researched, which is in accordance to the findings of Nilsen and Bernhardsson [29]; developing a greater awareness of these contextual factors and how they impact on implementation efforts, might contribute to a better design of future interventions to be implemented for MUS. In-depth research on how the different factors can impede or promote implementation and how these factors might change over time, can help to better understand the difficult process of implementing interventions for MUS in primary and secondary care.

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Disclosures

No conflicts of interest.

Data availability

The data supporting this systematic review are from previously reported studies and datasets, which have been cited.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.genhosppsych.2021.10.004>.

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