Training Medical Specialists in Communication with Patients with Medically Unexplained Physical Symptoms

Anne Weiland

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Communicatietraining voor medisch specialisten gericht op patiënten met somatisch onvoldoende verklaarde lichamelijke klachten

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CHAPTER 1

General introduction

BACKGROUND

Patients with medically unexplained physical symptoms (MUPS)

Many patients report symptoms for which the doctor cannot find a medical cause that sufficiently explains the symptoms, even after adequate medical examination. These so called medically unexplained physical symptoms (MUPS) occur within every medical specialty. Examples of MUPS are unexplained pain, chronic fatigue, dizziness, abdominal discomfort, chronic lower back pain, non-cardiac chest pain, chronic pelvic pain, or muscle weakness. The definition MUPS should be considered by the treating physician when a patient experiences physical symptoms for at least several weeks to six months, without underlying physical abnormalities(1). Usually these symptoms are self-limiting and disappear within a year(2). However, in 10-30% of patients these symptoms do not improve(2-4).

Patients with severe, persistent MUPS have reduced subjective health with impaired physical, mental or social functioning, an increased prevalence of depression or anxiety disorders and increased sick-leave(5). MUPS are more prevalent among women and associated with older age, low education, employment disability or unemployment(6). Patients with severe, persistent MUPS have a two times higher use of healthcare services than patients with comparable symptoms caused by a somatic disease(7). Unnecessary medical examinations and interventions do not only increase healthcare costs, they even can increase patients' health anxiety and symptoms(8-9). Patients are looking for an engaged doctor who is able to understand the burden of their symptoms, to answer their questions, to explain their symptoms and to offer treatment(10). When MUPS patients feel not understood by their doctor it hampers the doctor-patient relationship and confirms patients' beliefs that their symptoms are not taken seriously and need further investigation(11).

In sum, MUPS burden patients emotionally, physically and in their functioning(12). They frequently use healthcare services and are substantially prevalent in the caseload of general practitioners (GPs) and medical specialists. MUPS are among the five most expensive diagnostic categories in the Netherlands and its prevalence is estimated to one million children and adults (6% of the total population) (13-16).

MUPS in primary health care

In general practice 25-50% of patients' symptoms cannot be medically explained(17). The recent MUPS guideline of the Dutch College for General Practitioners (NHG) suggests a stepped care approach(2, 18). The general practitioner (GP) estimates the severity of MUPS as an outcome on the somatic, cognitive, emotional, behavioral and social dimensions of the symptoms. The guideline distinguishes mild, moderate and severe MUPS based on the number and duration of symptoms as well as symptom clusters

and the level of functional impairment. The chosen treatment is depending on patients' symptom severity. In case of mild MUPS the GP treats the patient (step 1), in case of moderate MUPS the GP cooperates or refers patients to other primary care professionals such as a physiotherapist or psychologist (step 2), and in case of severe MUPS treatment is provided by multidisciplinary teams or treatment centers (step 3).

Management is focused on providing information and advice with a view to increase patient's functioning. NHG guidelines recommend that GPs refer MUPS patients to the medical specialist only with a specific question, which requires a clear answer. Since there are multiple and even inconsistent ways to explain and interpret MUPS, it is important that specialists' reply letters should contain valid information that support GPs and patients in gaining trust, reassurance and effective follow-up care(19).

MUPS in specialist care

In hospital practice 40-60% of newly referred patients to the outpatient clinics of Neurology, Gynecology, Rheumatology or Internal Medicine present MUPS(20). Medical specialists find patients with invalidating symptoms without underlying pathology much more difficult to deal with than patients with symptoms that are medically explained(21). The problem here is that they primarily use a medical, disease-centered approach in their consultations with MUPS patients. Figure 1 illustrates how medical specialists unintended draw patients' attention towards the somatic aspects of their symptoms. Medical specialists don't want to miss a serious, rare disease and therefore are easily triggered to do more physical examinations or medical interventions than guidelines suggest or might lack specific knowledge to properly distinguish, treat or refer patients with MUPS(22-24). They sometimes don't understand patients' expectations

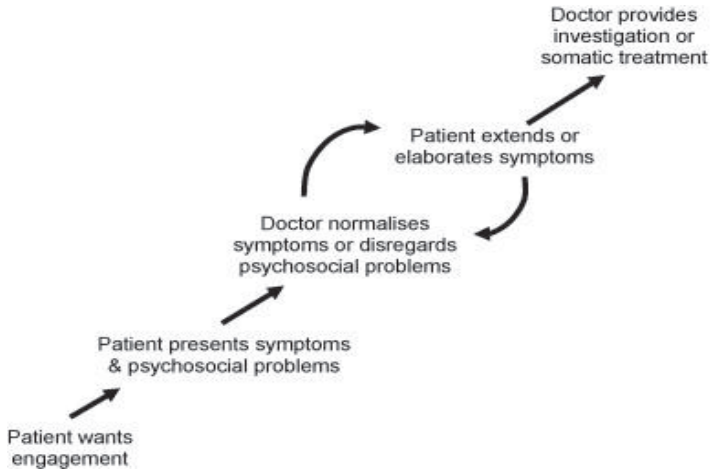

Figure 1 Disease-centered doctor-patient interaction in MUPS consultations (Salmon, 2007)

at initial consultations and face patients, who won't accept their findings and definition of MUPS(25). Moreover, medical specialists[1] feel less competent in consultations with MUPS patients compared to patients with explained symptoms(26).

MUPS patients in medical specialist care feel anxious and unsatisfied when expectations are not met(27). Contest between patients' expertise, resting on their experience of their symptoms versus doctors' authority, based on epidemiology, diagnostic skills and the normal findings of tests and investigations often contribute to problems in MUPS consultations(28-29). The doctor needs to find an explanation that is acceptable to both parties from available medical and lay material. Finding sensible, common ground in the explanation of the symptoms, shared by doctor and patient, is very much indicated as a preferred strategy to overcome these problems(28). Using a broader biopsychosocial approach provides patients with confidence that biomedical needs are addressed, while at the same time the floor is open for discussing psychosocial issues, and provides medical specialists with more insights in patients' symptoms and clues to explain MUPS understandably(1, 30-33).

Different definitions and approaches for MUPS

Patients with persistent fatigue, abdominal symptoms and joint and muscle pain could be labeled by an internist as Chronic Fatigue Syndrome, by a gastroenterologist as Irritable Bowel Syndrome, whereas the rheumatologist could define the symptoms as Fibromyalgia Syndrome.

Various descriptions and definitions for MUPS reflect differences in approach and difficulties in research and practice(34). Are MUPS referring to one underlying syndrome with multiple manifestations and different names for the same syndrome, depending on the medical specialty of the treating physician(35)? Or are they different syndromes, which need to be treated separately(36)? Many doctors find MUPS one, general syndrome and therefore are 'lumpers', while most patients share the view of 'splitters', meaning that there are many MUPS with different treatments. Arguments which support the 'lumpers' view are that most MUPS syndromes overlap in symptoms, are more frequently presented by women and share several biological mechanisms (autonomic nervous system activation, central pain sensitization and non-restorative sleep) and psychosocial mechanisms (stress, traumatic events and mental disorders) that reinforce patients' symptoms(37-38).

In primary health care MUPS usually are classified into four clusters of musculoskeletal, cardiopulmonary, gastrointestinal and general symptoms (such as fatigue, headache, and dizziness). In somatic specialist care MUPS are classified into two main clusters: symptoms of pain-fatigue (such as chronic fatigue, disturbed sleep, gastrointestinal

1 In this thesis the word 'medical specialist' includes residents and refers to non-psychiatric specialists.

problems, headache and musculoskeletal pain) and cardiopulmonary symptoms (such as chest pain, dyspnea, and palpitations). In mental health care the preferred definition nowadays is somatic symptom disorder according to the new DSM-5, in which the emphasis is on symptoms and accompanying decreased functioning no matter if the symptoms are explained or unexplained(39).

Treatment for MUPS

Despite different approaches and definitions there is common knowledge that the number of bodily symptoms, the number of symptom clusters involved, and the severity of the symptoms have been found to contain prognostic information(40). Patients with multiple and persistent MUPS that occur for more than two years have a less favorable prognosis and a long-term impact on patient functioning in regard to working life than patients with less MUPS(12, 41). Furthermore, it is known that when, after adequate examination, patients' symptoms are defined as MUPS, seldom another diagnosis that accounts for the symptoms shows up at long-term follow-up (42-45).

MUPS are always multi-factorial. There are somatic, physiological, cognitive, emotional and psychosocial aspects involved that trigger and reinforce patients' symptoms. Discovering how these aspects are interrelated and could be moderated requires personalized medicine and a patient-centered approach(33). Moreover, patient-centered communication has a positive impact on health outcomes of patients with MUPS(46).

Effective interventions for patients with persistent MUPS are limited. Medication (such as antidepressants) moderately alleviates physical symptoms, anxiety and depression in MUPS patients, but also has side-effects(47). Non-pharmacological interventions for MUPS patients are Cognitive Behavioral Therapy (CBT) besides structured, long-term enhanced care by their doctor(48). Acceptance and Commitment Therapy (ACT) and Mindfulness Based Cognitive Therapy (MBCT) are promising interventions to increase patients' mental functioning(49). Psychological interventions, based on the principles of Cognitive Behavioral Therapy, reduce patients' symptom severity and improve daily functioning (48, 50-51). However, many MUPS patients hesitate or refuse to accept psychiatric or psychological care in mental health care venues because they are afraid of being stigmatized or because they are convinced that only medical interventions can solve their symptoms(52).

MUPS-focused doctor-patient communication in specialist care

Most research on MUPS-focused doctor-patient communication has been aimed at primary health care(53). There are certain do's and don'ts in MUPS-focused doctor-patient communication. Structure, biopsychosocial symptom exploration, using clear and positive language and explaining the nature of MUPS are some of these essentials.

GPs already benefit from postgraduate MUPS-focused training programs, experiencing more comfort and structure in MUPS consultations(54-56).

Medical specialists encountering MUPS patients lack such MUPS-specific postgraduate education. They are very well able to exclude diseases in case of symptoms that are not easily understood, but don't have yet medical explanations for patients' symptoms and thus no treatment to offer. Since there are various MUPS definitions and approaches patients easily get confused by different and sometimes inconsistent messages from doctors(19). Due to a high prevalence of MUPS in outpatient clinics and a high degree of difficulty medical specialists experience in MUPS consultations we were challenged to search for effective communication strategies and practical skills to equip medical specialist in consultations with MUPS patients. We hypothesized that explaining MUPS in a patient-centered way, answering GPs' referral questions, and giving a clear advice to patient and GP in specialists' reply letters could improve MUPS specialist care(57-58).

Educational framework

To develop a feasible, evidence-based educational intervention for medical specialists that would meet their needs in everyday clinical practice with MUPS patients the method of 'Intervention Mapping', offered a structure to systematically define needs, educational objectives, methods, techniques and content(59). An overview of systematic reviews on effective training strategies for teaching communication skills to physicians by Berkhof et al. showed the importance of active, practice-oriented training models. They identified that training programs were effective if they lasted for at least one day, were learner-centered, and focused on practising skills preferably divided in several sessions over a period of time and included role-play, feedback, and small group discussions(60). Training methods like the Structured Learning Technique (SLT) and the Cumulative Micro Training Method (CMT) would provide a conceptual frame to design communication skills training courses and match Berkhof's prerequisites of an effective training strategy(61-62). Structured learning focuses on shaping conditions that facilitate acquisition of skills and transfer of these skills to daily practice. The Cumulative Micro Training Method is a method in which theoretical instruction, modeling, practicing by role plays, feedback, social and self reinforcement and identifying personal learning points improve professionals' competence in communication skills. Techniques and insights from the Cognitive Behavioral Therapy (CBT) would contribute to doctors' understanding of the interrelatedness of biological, cognitive, emotional, behavioral and social aspects that reinforce patients' symptoms and would provide a structure for biopsychosocial symptom exploration and explanation(63). Miller's four-level scale for the assessment of clinical performance, that discerns in *knows* (level 1), *knows how* (level 2), *shows how* (level 3) and *does* (level 4), delivered an instrument for the evaluation of an educational intervention(64).

THIS STUDY

Aim

The aim of this study is to provide effective communication strategies for medical specialists in their consultations with MUPS patients. We included the insights from the Dutch multidisciplinary guideline on MUPS and somatoform disorders, in which multi-factorial symptom exploration, positive explanation and activating advices were considered to be important in MUPS care(1). Our general research hypothesis was that supporting medical specialists and residents with effective MUPS-focused communication strategies and practical skills would have a positive impact on patients' health and would reduce healthcare costs due to unnecessary specialist interventions and a lower use of care.

Research questions

We started our research with the following research questions (Q):

(Q1) 'Which elements of MUPS-focused doctor-patient communication in somatic specialist care influence patients' symptoms, health anxiety, satisfaction, daily functioning and use of health care'?

(Q2) 'Which unmet needs do medical specialists have in their encounters with MUPS patients'?

(Q3) 'Which evidence-based training facilitates medical specialists in MUPS consultations'?

(Q4) 'Does MUPS-focused communication training facilitate medical specialists to use more often effective communication in MUPS consultations compared to non-trained medical specialists'?

(Q5) 'What is the effect of training medical specialists in MUPS-focused communication skills on patients' illness worries, course of symptoms and daily functioning in comparison with non-trained specialists'?

(Q6) 'Is MUPS-focused communication skills training for medical specialists cost-effective'?

Thesis outline

In ***chapter 2*** we present the start of our research with a literature review to explore what is known about effective doctor-patient communication in MUPS specialist care. Are there already well developed MUPS-focused communication strategies for somatic medical specialists? Does communication matter in MUPS specialist care? What is known about the effectiveness of specialist communication on patient health and healthcare costs? To study these questions we formulated the following objective for the literature review*:* 'Which elements of MUPS-focused doctor-patient communication in somatic

specialist care influence patients' symptoms, health anxiety, satisfaction, daily functioning and use of health care'?

Chapter 3 describes the needs assessment and the process of 'Intervention Mapping', to create an evidence-based MUPS focused training program for medical specialists(59). Results of our literature review and the development of a pilot-training were part of the needs assessment and contributed to the intervention objectives and identification of methods and techniques for the training model. This chapter shows the stepwise description of the development and content of the training program, aimed to provide medical specialists with current knowledge and optimal communication tools focused on MUPS consultations.

In ***chapter 4*** we report on the assessment of the effectiveness of the training program focused on the communication skills in consultations with MUPS patients. We designed a *multi-centered randomized controlled trial* with a study population consisting of medical specialists from various specialties, who encountered MUPS patients in outpatient clinics. MUPS consultations were videotaped and observed on verbal and non-verbal behavior. We report on the results of doctors' communication skills and present the evaluation of the training program by the participants.

In ***chapter 5*** we continue with an assessment of the specialists' reply letters to the general practitioner (GP) about the included MUPS patients. Reply letters were retrieved from medical hospital records and analyzed. In the training program medical specialists were taught to address GPs' referral questions and patients' questions explicitly. Giving a plausible and understandable explanation for the symptoms to the patient and summarize the discussed information with the patient in the reply letter to the GP together with a clear advice for follow up and treatment was practiced.

In ***chapter 6*** we report on the effectiveness of the training program on patient outcomes and costs. Patients filled out web-based patient questionnaires on symptoms, health anxiety, daily functioning, distress, anxiety, depression, somatization, use of care and loss of work and income. Patients answered the questionnaires on baseline and at follow-up.

We finalize our research in ***chapter 7*** by a general discussion in which an overview of the main findings are presented, followed by discussion, methodological reconsiderations and recommendations for practice and future research; ***chapter 8*** includes a summary of the thesis.

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CHAPTER 2

Encounters between medical specialists and patients with medically unexplained physical symptoms; influences of communication on patient outcomes and use of health care: A literature overview.

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ABSTRACT

Objective

Medically unexplained physical symptoms (MUPS) burden patients and health services due to large quantities of consultations and medical interventions. The aim of this study is to determine which elements of communication in non-psychiatric specialist MUPS care influence health outcomes.

Methods

Systematic search in PubMed, PsycINFO and Embase. Data extraction comprising study design, patient characteristics, number of patients, communication strategies, outcome measures and results. Elements of doctor-patient communication were framed according to symptoms, health anxiety, satisfaction, daily functioning and use of health care.

Results

Eight included studies. Two studies described the effect of communication on patient outcome in physical symptoms, three studies on health anxiety and patient satisfaction and one study on daily functioning. Two studies contained research on use of health care. Qualitative synthesis of findings was conducted.

Conclusion

Communication matters in non-psychiatric MUPS specialist care. Perceiving patients' expectations correctly enables specialists to influence patients' cognitions, to reduce patients' anxiety and improve patients' satisfaction. Patients report less symptoms and health anxiety when symptoms are properly explained. Positive interaction and feedback reduces use of health care and improves coping.

Practice implications

Development of communication skills focused on MUPS patients should be part of postgraduate education for medical specialists.

INTRODUCTION

Communication, defined as the intentional verbal and non-verbal actions of a health professional, is generally understood to be an important component of patient care(1). A systematic review of randomized clinical trials and descriptive studies about physician-patient communication indeed revealed a positive influence of effective communication on health outcomes(2). When physicians have no medical explanation for persisting physical symptoms (e.g. chronic fatigue syndrome, irritable bowel syndrome, chronic pain syndrome, fibromyalgia syndrome, chronic pelvic pain, pseudo non-epileptic seizures) many patients feel that they are not being taken seriously, whereas doctors often feel unable to come to an agreement with their patients on problem definition(3). Dissatisfaction and pressure on the doctor-patient relationship hamper their communication. The health outcome of patients with MUPS in primary care can be influenced positively by patient-centered communication, effective reassurance, reliable patient information and a clear and positive explanation about the nature of the symptoms(4-8).

Patient-centered communication in general is incorporated in Dutch undergraduate medical education. MUPS-focused communication skills training is available in post-graduate education for GPs and trainees(9) but not for medical specialists and residents.

Since at least 40% of physical symptoms presented in outpatient clinics of gynaecology, neurology or rheumatology remain medically unexplained(10-12), medical specialists could benefit from MUPS-focused training programs. MUPS burden patients and health services due to large quantities of consultations and medical interventions(13). Comorbidity, lack of clear guidelines and limited knowledge about MUPS among non-psychiatric specialists(14-16) often cause unnecessary medical interventions and unintentionally reinforce somatisation(17). Normal test results of additional specialist investigations naturally do not reassure MUPS patients(18-19).

In short, MUPS in specialist care is a big issue. Therefore, we want to explore what is known about effective physician-patient communication in MUPS specialist care. Are there MUPS-focused communication strategies for specialists? Does communication matter in MUPS specialist care?

Objective

To study the questions above, our objective is: 'Which elements of doctor-patient communication by non-psychiatric specialists in patients with MUPS influence symptoms, health anxiety, satisfaction, daily functioning and use of health care?' These specific outcome measures were used in different types of health care research(20-24). MUPS specialist care, being far more costly than general care, could benefit from improving these outcomes.

METHODS

Data sources and search strategy

We conducted systematic searches in the electronic databases PubMed, Embase and PsycINFO in April 2011. Medically Unexplained Physical Symptoms was searched in four different ways. The word 'unexplained' and its synonym was combined with 'subjective symptoms' and its synonyms, with behaviors often occurring in MUPS patients and for general complaints (such as headache) combined with factors that make it unexplained (such as chronic). This search for MUPS was combined with a search for non-psychiatric specialist or secondary care and their synonyms and with a search for interaction as a combination of synonyms for the word professional near the word patient. Table 1 shows the complete search string in Embase.

Table 1: Search for www.embase.com

#1	(unexplain* OR (un NEXT/1 explain*) OR ('not' NEXT/3 explain*)):de,ab,ti
#2	(nonspecific* OR (non NEXT/1 specific*) OR ('not' NEXT/3 specific*)):de,ab,ti
#3	((subjective OR Somatoform OR functional) NEXT/5 (symptom* OR disorder* OR complaint*)):de,ab,ti
#4	((frequent NEXT/1 attend*) OR (high NEXT/1 utili*) OR hypochondri*):de,ab,ti
#5	((Headache OR 'chest pain' OR 'neck pain' OR 'pelvic pain' OR 'benign pain' OR 'back pain' OR trauma OR 'chemical sensitivity' OR gastrointest* OR dyspepsia OR seizure* OR Fatigue OR dizziness OR hysteri* OR premenstrual OR 'irritable bowel' OR fibromyalgia) NEAR/3 (psycholog* OR psychogen* OR Psychosom* OR Psychophysiol* OR functional* OR chronic OR syndrome OR non-cardiac OR noncardiac OR Tension OR cumulative OR multiple)):de,ab,ti
#6	#1 OR #2 OR #3 OR #4 OR #5
#7	(specialis* OR specialization OR physician* OR (vocational NEXT/1 trainee*) OR intern OR interns OR resident* OR 'secondary care' OR hospital*):de,ab,ti
#8	((professional* OR doctor* OR physician* OR provider*) NEAR/3 patient):de,ab,ti
#9	#6 AND #7 AND #8

Study inclusion and selection

Studies were eligible for selection if they were published in peer-reviewed journals in English, German, French or Dutch; involved an adult human population; had a publication year between January 1984, when PubMed started, and April 2011; had an empirical study design; and contained an outcome at patient level in terms of symptoms, health anxiety, satisfaction, daily functioning or the use of health care. After removing the duplicates, two authors (AW, RK) independently screened titles and abstracts to select eligible studies; selection was checked by two co-authors (AB, LA), who each revised the first selection. Full text papers were obtained of the selected studies. AW and RK independently critically appraised the full-text papers and excluded studies that did not meet the inclusion criteria. Disagreement was solved by discussion between authors (AW, RK, AB, LA).

Table 2: Overview of included studies

Author, Year[Ref #]	Study design	Study group	Nr. of patients	Outcome	Intervention/study subject	Effect
Bieber 2008(25)	RCT	Fibromyalgia syndrome patients	83	Patient satisfaction	A shared decision-making training program for specialists combined with an information leaflet for patients versus information leaflet only.	No difference in patient satisfaction was found in the shared decision making group and the information only group.
Bieber 2006(26)	RCT	Fibromyalgia syndrome patients	67	Functioning	A shared decision-making training program for specialists combined with an information leaflet for patients versus information leaflet only or standard care as usual.	Functional capacity did not differ across the study groups. The patients of the share decision making study group improved coping with pain and being more positive.
Collins 2009(27)	Cohort study	Patients with functional gastrointestinal disorders	13	Health anxiety Use of health care	Concordance between specialists' understanding of patients reported symptoms and their actual needs.	Underestimating patients' expectations and symptoms maintained health anxiety and was likely to lead to more use of health care.
Van Dulmen 1995(28)	Cohort study	Patients with functional abdominal pain	110	Patient satisfaction Health anxiety	Correct perceptions of patients' attributions and having the same doctor.	Reduced health anxiety ($p=0.01$) and improved satisfaction by consulting the same doctor ($p=0.02$).
Hall-Patch 2010(29)	Cohort study	Patients with pseudo neurological epileptic seizures	50	Course of symptoms	A patient information leaflet and a communication protocol for neurologists to explain the psychological nature of the seizures.	Reduced frequency of seizures.
Owens 1995(30)	Cohort study	Patients with irritable bowel syndrome	112	Use of health care	Physician-patient relationship on use of health care.	Reduced number of return visits for IBS-related symptoms.
Petrie 2007(31)	RCT	Patients with nonspecific chest pain	92	Health anxiety Course of symptoms	Providing information about normal test results before testing.	The number of patients still reporting chest pain after one month decreased significantly ($p<0.001$). Addressing patients' attributions by information about normal test results prior to testing diminished health anxiety.
Stones 2006(32)	Cohort study	Women with chronic pelvic pain	100	Patient satisfaction	Doctors' affect, appropriateness of information and ability to meet patients expectations	Initial consultation influenced further care experiences. Doctors' affect, appropriate information and meeting patients' expectations enhanced patient satisfaction.

Data extraction and analysis

For all included studies, data extraction was undertaken comprising study design, patient characteristics, number of patients, communication aspects, and outcomes, as shown in Table 2. Meta-analysis was not feasible due to the small number of studies and variety in study design and outcome measures; therefore a qualitative synthesis of findings was conducted.

RESULTS

Selection of studies

The combined search resulted in 1981 articles. After screening titles and abstracts, 74 articles met the inclusion criteria and were retrieved for further assessment. Two authors (AW, RK) reviewed these full-text articles and selected 21 articles according to inclusion and exclusion criteria. Discussion with four authors (AW, RK, AB, LA) reduced the number to eight eligible studies. Thirteen articles were excluded because they lacked outcomes fitting our study question. Of the selected articles, a thorough search of related articles, references and citing articles was performed. This yielded no extra article for inclusion. Figure 1 presents the flowchart of the systematic search.

Synthesis of findings

The included articles discuss different types of MUPS patients, and describe different elements of communication strategies used by medical specialists that may have an impact on health outcomes and use of health care. We framed and summarized these elements of doctor-patient communication according to the outcomes defined in our study question: symptoms, health anxiety, satisfaction, daily functioning and use of health care.

Symptoms

In the study by Hall-Patch et al.(29) most patients with psychogenic non-epileptic seizures (PNES) were initially diagnosed as having epilepsy and had been treated with antiepileptics for several years. Participants received the diagnosis of PNES on average 5.2 years after seizure manifestation. The study was carried out to assess the acceptability and effectiveness of a patient information leaflet and a communication protocol for neurologists to explain the psychological nature of the seizures to their patients; 44 patients positively evaluated the information leaflet. The frequency of the seizures between diagnosis and follow-up after 3 months was reduced by more than 50% in 63% of the patients; 14% of the patients were seizure-free after three months.

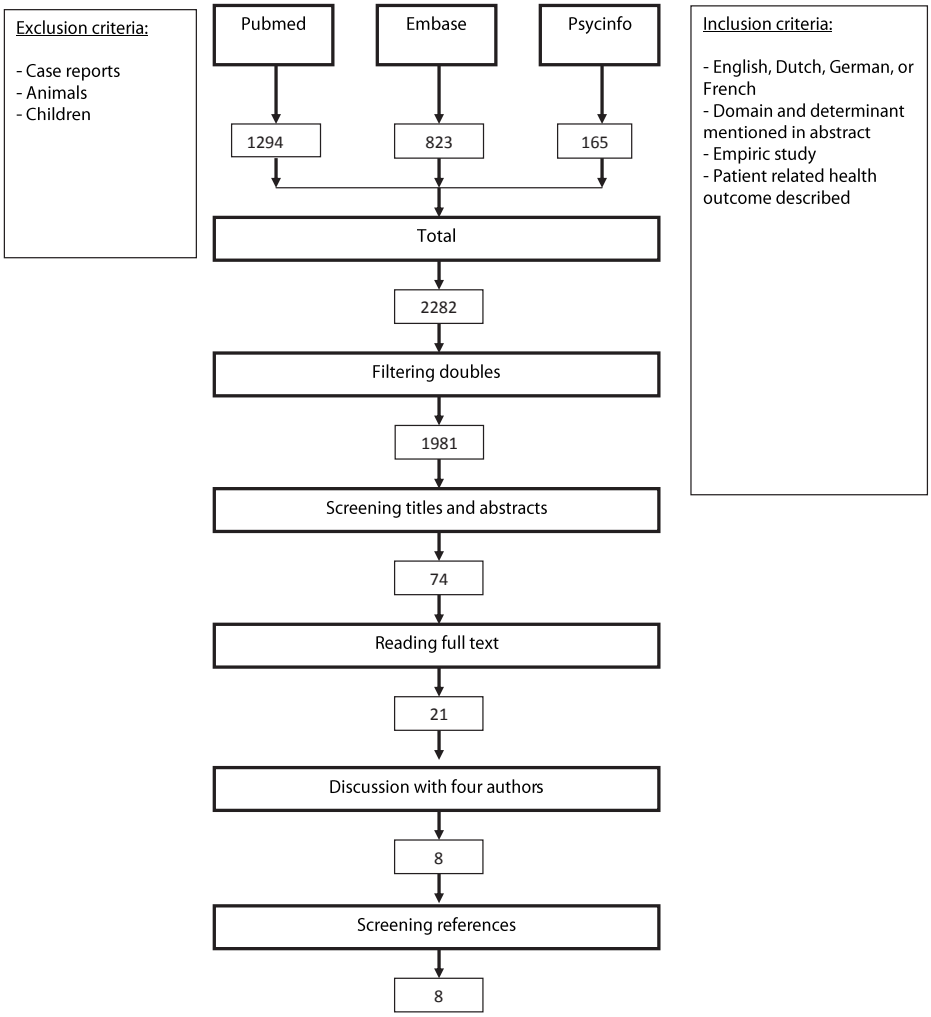

Figure 1 Flow chart of the systematic search

Petrie et al. investigated whether providing information about normal findings prior to a diagnostic test improves patients' reassurance and reduces health anxiety(31). They studied 92 patients with chest pain who were referred for a diagnostic exercise stress test. These patients were divided into a group of 30 patients receiving a pamphlet explaining the function and meaning of normal test results; a group of 34 patients receiving the pamphlet and a brief discussion about the meaning of normal test results and a control group of 28 patients receiving standard information. The number of patients still reporting chest pain after one month decreased significantly in the discussion group ($p<0.001$) and pamphlet group ($p=0.005$) but not in the control group ($p=0.09$). Another finding was that fewer patients in the discussion group were taking cardiac drugs after

one month. In conclusion, explaining the nature of MUPS with an information leaflet, a core points crib sheet for specialists and a brief discussion about the meaning of normal test results prior to testing reduces symptoms in patients.

Health anxiety

The study by Petrie at al.(31), mentioned above showed that the mean levels of reassurance in patients with chest pain after testing and feedback from the doctor were significantly higher in the discussion group (M = 42.0, 95% confidence interval (CI) 39.7-44.2) than in the pamphlet group (M = 39.2, 95% CI 36.1-42.3) and control group (M = 35.8, 95% CI 31.6-39.9). This difference was maintained after one month. So, addressing patients' attributions and providing patients with information about normal test results before testing can improve reassurance and thus diminish health anxiety.

Van Dulmen et al.(28) explored changes in complaint-related cognitions and anxiety of 110 patients with irritable bowel syndrome during a series of consultations in an outpatient clinic of internal medicine. They found that anxiety (p=0.01), fear of cancer (p<0.001), somatic attributions (p< 0.001) and catastrophising cognitions (p=0.008) diminished significantly between the first and last consultation of patients with irritable bowel syndrome (IBS). Aspects of communication that accounted for the measured effects were doctors' correct perceptions of patients' attributions and having the same doctor throughout the consultations.

Collins et al.(27) studied concordance between 13 eligible patients with functional gastrointestinal disorders (FGID) and doctors (11 gastroenterologists and 13 GPs). They investigated patients' needs and expectations at initial consultations and whether their specialists and GPs recognised these patient perceptions. Gastroenterologists underestimated patients' reported number of symptoms (82%), pain (48%), and interference with daily functioning (41%). Views on the best treatment options diverged: patients preferred operation (41%) or diet (31%), whereas the specialists were focused on symptom control by medication (41%) or managing worry (28%). A persisting expectation of finding a specific cause and cure was present in these patients. Only one out of 13 patients acknowledged the diagnosis FGID at follow-up. So, underestimating patients' expectations and symptoms does not reassure patients and maintains existing health anxiety.

Patient satisfaction

Van Dulmen et al.(28) found that patients whose anxiety diminished (N = 59) were more satisfied with the visit to the doctor than patients whose anxiety did not diminish (p = 0.02). Patients consulting the same doctor throughout the consultations were more satisfied with the consultations than patients who visited different doctors (p = 0.05).

The study by Stones et. al.(32) aimed to identify the three dimensions of patient satisfaction (affect, cognition and expectation) through which initial consultations were subsequently recalled at follow-up in 100 gynaecology patients with chronic pelvic pain (CPP). These authors demonstrated that doctors' affect, appropriateness of information and the ability to meet patients' expectations are strong influences on experiences of care. These three elements of patient satisfaction were interrelated and influenced the experiences of care. Building a good relationship in the first hospital visit improves the understanding of the diagnosis and makes a positive coping of the patient more likely.

Bieber et al.(30-31) assessed whether shared decision-making improves the quality of physician-patient interaction from the perspective of the patient in 85 patients with fibromyalgia syndrome. They measured patient satisfaction with the decisions and did not find significant group differences. Decisional conflicts and satisfaction with decisions were similar in the study groups.

Daily functioning

Bieber et al.(25-26) found that fibromyalgia syndrome patients benefit from a shared decision-making communication training program for physicians combined with an information package for patients. During the training, doctors learned to consider their patients' individual needs and to meet their patients' expectations. These elements accounted for a better physician-patient interaction. Qualitative assessment revealed a dramatic difference: at one-year follow-up more patients in the shared decision-making group (62%) than in the care as usual group (28%) mentioned that their coping with pain had improved. Patients from the shared decision group adopted a more positive view when thinking of the future with their illness than patients from the care as usual group.

Use of health care

Collins et al.(27) suggested that failure of patients to acknowledge their diagnosis of FGID might underpin recurrent consultations and possibly leads to unnecessary use of health care. Patients who believe that their symptoms are not adequately explained are not able to accept the diagnosis. Collins et al. also found that when patients seek specialist consultation, the reason for the visit often remains unclear to the specialist. Possible reasons found are the need of diagnosing the cause of symptoms and the initiation or the readjustment of treatment. Effective consultation with MUPS patients starts with exploring the reason why the patient visits the doctor.

Owens et al.(30) found that a strong physician-patient interaction may be related to a reduced number of return visits for patients with irritable bowel syndrome (IBS). Comparison of the strongest and weakest interaction groups (1.8 and 4.9 hospitalizations, respectively; $p<0.05$) indicated that positive interaction was associated with fewer

hospitalizations. However, the authors found no association between strength of the physician-patient interaction and number of surgeries. Notation in medical records of the patient's psychosocial history ($p<0.01$) about precipitating factors causing the patient to seek medical help ($p<0.01$) and notation of discussions with the patient ($p<0.02$) were associated with fewer follow-up visits for IBS-related symptoms.

DISCUSSION

Main findings

This review demonstrates that the research on specialist communication with MUPS patients and its effect on patient outcomes and use of health care is limited. We did not restrict our search to RCTs and CCTs. Despite having broad inclusion criteria we only found 8 studies describing different outcomes and aspects of communication:

1. Perceiving patients' expectations correctly enables specialists to influence patients' cognitions, reduces patients' anxiety, and improves patient satisfaction(28).
2. Explaining the nature of MUPS with an information leaflet and a core points crib sheet for specialists reduces health anxiety and symptoms in patients(29).
3. Providing patients with information about normal test results prior to investigation helps to reassure patients(31).
4. Positive doctor-patient interaction(27, 32) and positive feedback from the doctor contributes to reduced use of health care(30) and better coping with complaints in the long term (25-26).

Incorporating these four elements in a vocational and postgraduate MUPS-focused communication skills training for specialists could improve MUPS specialist care and support specialists in their consultations with MUPS patients.

Comparison with the literature

We found that proper explanation and showing affect in communication with MUPS patients in specialist care improve patient outcomes and reduce the use of health care. Specialists trained in shared decision-making(30, 31) and in communicating the diagnosis MUPS to patients(27) influenced health outcomes positively. These elements are also important in general practice and in patients with minor ailments. Blankenstein et al.(33) found that trained GPs were able to apply cognitive-behavioral techniques to patients with MUPS during normal consultation hours. At follow-up subjective health was increased, use of health care and sick-leave were decreased (26). Fassaert et al.(5) studied positive communication strategies during 524 videotaped consultations in general practice with patients with minor ailments related to medication adherence,

consultation frequency, functional health status and state anxiety. Results show that, to some extent, it seems helpful when GPs are at the same time clear and optimistic about the nature and course of minor ailments. Results of this study indicate that it is important for physicians to pay attention to the patients' mood. Thomas studied 200 patients in general practice who presented symptoms without abnormal physical signs and in whom no definite diagnosis was made. Patients who received a positive consultation from their GP for their symptoms were more likely to improve than those who received no explanation(8). Sometimes MUPS patients are referred frequently to secondary care even after having received multiple specialist opinions that their symptoms were medically unexplained(34). Referring MUPS patients to hospital clinics repeatedly is not the best way to address their needs(35). These patients are unlikely to benefit from repeated referrals to specialist services that are designed to find or exclude disease rather than to deal with symptoms(36). Positive communication between specialists and GPs is required to reduce unnecessary medical interventions, use of health care and aggravation of symptoms, and improves care for MUPS patients by sharing knowledge and stepped care(37) .

Strengths and limitations of this review

This review is the first paper to give an overview on the knowledge of doctor-patient MUPS-focused communication in specialist care. Although the selected studies contain a limited variety of MUPS, patient characteristics and aetiological mechanisms appear to be quite similar for different MUPS(38). Therefore our results can probably be transferred to MUPS patients in general. From all selected studies, only three described explicit communication programs for specialists(25-26, 31).This indicates the low priority in specialist care for MUPS-focused communication. Enhancement of knowledge and communication skills might improve specialist care for MUPS patients((39-40). Methodological and clinical variety of the studies and small number of (quantitative) studies made pooling of results of the different studies not useful.

Conclusion

This review shows that communication matters in specialist care. Perceiving patients' expectations correctly enables specialists to influence patients' cognitions, reduce patients' anxiety and improve patients' satisfaction. Providing patients with information helps them to feel reassured. Patients report less symptoms and health anxiety when they get a proper explanation of their symptoms. Positive doctor-patient interaction and positive feedback from the doctor reduces the use of health care and improves coping with complaints on the long term. These elements should be integrated in postgraduate education for specialists.

Recommendations for research and postgraduate education

First, we recommend further research on communication with MUPS patients in non-psychiatric specialist care and related health outcomes. Secondly, we recommend research on postgraduate education in specialist care for MUPS patients to enhance communication skills for specialists that contribute to the quality of specialist care for MUPS patients.

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CHAPTER 3

Postgraduate education for medical specialists focused on patients with medically unexplained physical symptoms; development of a communication skills training program.

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ABSTRACT

Objectives

Stepwise description of the development of a postgraduate communication skills training program for medical specialists focused on patients with medically unexplained physical symptoms (MUPS) to improve specialist interaction with MUPS patients.

Methods

Using the 'intervention mapping approach' we accomplished a needs assessment (literature study and pilot) to formulate intervention objectives and identify methods and techniques for a MUPS-focused communication skills training program for medical specialists.

Results

A 14-hour training program which consists of experiential learning, role-play and feedback. Using skills from Cognitive Behavioral Therapy, medical specialists are stimulated to explore interrelating factors that reinforce symptoms, to reassure patients effectively and to provide plausible and understandable explanations for MUPS. Dealing with complex referrals and informing GPs properly are also practiced.

Conclusion

By applying the 'intervention mapping approach' we were able to create a feasible and promising intervention to improve specialist interaction with MUPS patients. Intervention effects are currently being assessed in a randomized controlled trial.

Practice implications

If the RCT demonstrates sufficient effectiveness and efficiency of the MUPS focused communication skills training program for medical specialists the intervention could be embedded in postgraduate education of medical specialists and residents.

INTRODUCTION

Experiencing physical symptoms is quite normal. In community population surveys 85-95% of respondents report at least one symptom during the preceding week(1). In general practice 30-50% of the presented physical symptoms remain medically unexplained. In hospital practice this figure is even higher: 40-60%(2). Although most of these symptoms disappear within several months, 20-30% of medically unexplained physical symptoms (MUPS) still persist for more than one year(3).

Patients with persistent MUPS often have reduced subjective health with impaired physical, mental or social functioning, increased prevalence of co-morbid depressive or anxiety disorders and increased sick-leave(4). MUPS are more prevalent among women and associated with older age, lower education, employment disability and unemployment(5).

When physicians (such as GPs, neurologists, gynecologists, gastroenterologists, rheumatologists) have no medical explanation for persisting physical symptoms many patients feel that they are not being taken seriously, whereas doctors often feel unable to come to an agreement with their patients on problem definition(6). Patients are easily offended by incongruent messages about supposed non-somatic origins of the symptoms, and experience lack of empathy and acceptance for the physical symptoms(7). These experiences hamper adequate doctor-patient interactions, a proper exploration of problems and management for persistent MUPS(8). Several studies of patients' perspectives on consultations point to the importance of patients seeking legitimacy for their problems (9-10). Qualitative analyses have shown how doctors' explanations can create common ground that allows patients and doctors to address both psychosocial and physical aspects of the symptoms and to avoid unnecessary somatic interventions (11-13).

Teaching about symptom explanation in medical education is, however, limited and explanatory skills are underestimated in the curriculum(6). MUPS-focused communication skills training is available in Dutch postgraduate education for GPs and GP-trainees(14), but not for medical specialists and residents. Comorbidity, lack of clear guidelines and limited knowledge about MUPS among non-psychiatric specialists(15-17) often cause unnecessary medical interventions and unintentionally reinforce somatization(18). Normal test results of additional specialist investigations do not naturally reassure MUPS patients(19-20). Medical specialists sometimes choose to leave patient-centered explanations about MUPS to the GP, and feel incompetent or unsatisfied about their consultations with MUPS patients(21). To improve the quality of the consultation the medical specialist needs effective tools for determining the optimal strategy for patients with MUPS. Development of postgraduate education programs for medical specialists focused on MUPS patients might improve specialist MUPS care.

The purpose of this paper is to describe the development of an evidence-based training program for medical specialists focused on patients with MUPS, which provides physicians with optimal communication tools for effective specialist MUPS care.

METHODS

We used the intervention mapping framework to systematically apply theories, empirical evidence and practice perspectives in the development of a MUPS-focused communication skills training program for medical specialists(22). Intervention mapping (IM)

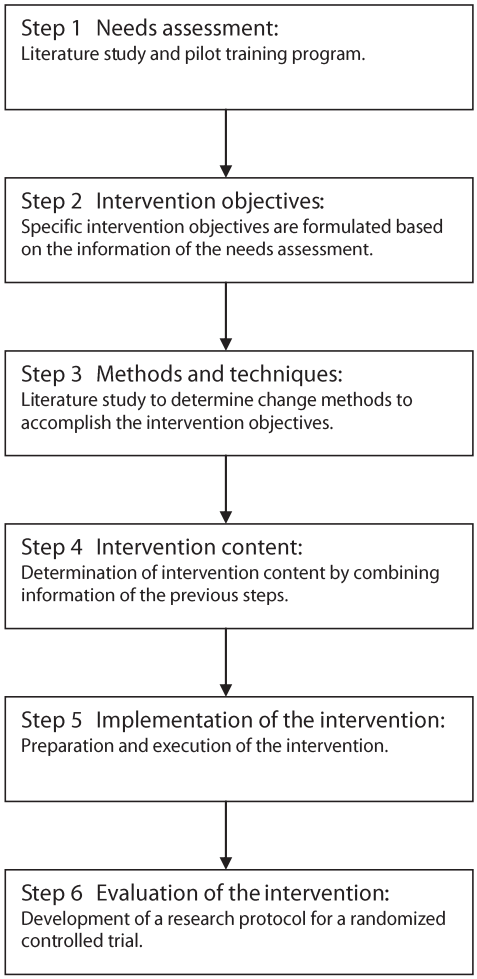

Figure 1 Model of Intervention Mapping

comprises six steps, which are shown in Figure 1. In the first step we accomplished a needs assessment, including literature study and a pilot training program for neurologists (staff and residents). The second step contained the description of the intervention objectives. In the third step we selected educational methods and techniques to match the intervention objectives. Then, in the fourth step we elaborated the intervention content, which is the MUPS-focused communication skills training program for medical specialists. In the fifth step we formulated the implementation plan. In the final step we wrote a research protocol for a randomized controlled trial to evaluate the effectiveness and efficiency of the intervention. This section describes how the steps were operationalized.

Step 1. Needs assessment

We used results from our literature study on determinants of non-psychiatric specialist communication focused on patients with MUPS. The publications were retrieved from PubMed, PsychInfo and Embase till April 2011. Medically Unexplained Physical Symptoms was searched in four different ways. The word 'unexplained' and its synonym was combined with 'subjective symptoms' and its synonyms, with behaviors often occurring in MUPS patients and for general complaints (such as headache) combined with factors that make it unexplained (such as chronic). This search for MUPS was combined with a search for non-psychiatric specialist or secondary care and their synonyms and with a search for interaction as a combination of synonyms for the word professional near the word patient.

A pilot training program, based on the existing Dutch GP training program for MUPS patients(14), was performed for the Department of Neurology of the Erasmus University Medical Center Rotterdam in 2007/2008. We measured attendance, and self-reported evaluation of the 22 participating physicians about the content and set-up of the training program, by a questionnaire.

Step 2. Intervention objectives

The result of the pilot training program was discussed by the Central Education Committee of the Erasmus University Medical Center Rotterdam as well as six trainers from the MUPS-focused communication skills training program for GPs. To achieve the overall aim of the intervention (to improve specialist care for MUPS patients) specific objectives for change of the specialists' behaviors were formulated, based on literature and pilot.

Step 3. Methods and techniques to change the doctor's behavior

Literature about educational methods and communication strategies for medical specialists in consultations with MUPS patients were studied to identify appropriate methods and techniques in accordance with the intervention objectives.

Step 4. Intervention content

The intervention objectives and selected methods and techniques were written down in a training program. A manual for participants and a separate manual for trainers were developed. Three draft versions of this program were discussed by the chairman of the Central Education Committee, two educational advisors of the Erasmus Medical University Center Rotterdam and six trainers, already selected for the implementation of this training program in six different hospitals.

Step 5. Implementation

Implementation of the intervention was realised in cooperation with six Dutch hospitals as part of a research project on the effectiveness and efficiency of a MUPS-focused communication skills training program for medical specialists and residents. A total of 120 doctors was recruited and trained in groups of twelve persons by two senior-trainers; the training group could be extended to a maximum of 15 persons, in which case a third assistant-trainer was added.

Step 6. Evaluation

To measure the effects of the intervention on doctor and patient outcomes we drafted a research proposal for a randomized controlled trial.

RESULTS

Needs assessment

We performed a literature review to determine which communication skills are known to have a positive influence on outcome and use of health care in MUPS patients(23). The results confirmed the importance of communication in specialist care for MUPS patients. Perceiving patients' expectations correctly enables specialists to influence patients' cognitions and attributions, to reduce patients' anxiety and to improve patients' satisfaction(24). Providing patients with information about normal test results prior to investigation helps patients to feel more reassured after the consultation(12). Patients report less symptoms and health anxiety when symptoms are explained properly for example by using a communication protocol and a information leaflet in which the MUPS are explained (25). Positive doctor-patient interaction and positive feedback from the doctor contribute to reduced use of health care and better coping with the symptoms (21, 26-30). These elements were integrated in the training program.

A 14-hour pilot training program was conducted in two groups for a total of 22 neurologists (staff and residents), directed by two senior trainers. The training model was based on experiential learning and particularly focused on the improvement of explora-

tion and information skills of medical specialists(31). Table 1 shows the results of the pilot evaluation. Nineteen of the 22 enrolled physicians attended the course completely and completed the questionnaire.

Participants evaluated the specific skills for symptom exploration, informing patients about the nature of medically unexplained symptoms and effectively reassuring patients as very useful. Skills that required more than one consultation, like symptom diaries and reattribution, or skills that were perceived to be the domain of other health care professionals (such as psychologists or GPs), were evaluated as less useful in specialist practice and removed from the training program.

Intervention objectives

Based on the literature the achievement of knowledge about the epidemiology, aetiology and treatment of patients with MUPS and somatoform disorders was selected to be the first objective in the training program(18). The acquisition of skills in explanation such as informing patients about the nature of MUPS and effectively reassuring patients

Table 1 Evaluation of pilot training program (n=22; 3 participants didn't fill out the form)

Content of the course	***Not useful***	***Rather useful***	***Very useful***
Literature	0	7	11
Practicing skills:			
- SCEBS symptom exploration	0	1	18
- SCEBS informing	0	5	14
- SCEBS planning	1	11	7
- Instruction symptom diary	1	8	7
- Discussion symptom diary with patient	1	7	11
- Reattribution	0	11	8
- Effective reassurance	0	3	16
- Negotiating a final test	0	1	14
- Challenging alarming thoughts (practiced in one group)	1	5	4
Discussing experiences/patient case	0	3	15
Additional literature	0	6	13
Volume of the training course	***Too long***	***Just right***	***Too short***
Duration of the course	2	15	2
Intervals between the sessions	2	16	1
Time investment for the different elements of the course	0	18	0
Approach by trainers	***Inadequate***	***Moderate***	***Good***
Instructions	0	0	19
Theoretical knowledge	0	3	16
Feedback	0	0	19

with MUPS was chosen as the second major objective(6). Answering patients main concerns, performing attention to the somatic symptoms, sharing conclusions based on findings and using clinical experience are key elements of effective reassuring(32). Adequate report to the GP who had referred the patient, containing the explanation and advice given to the patient about MUPS was defined as the third main objective of the course(33).

Methods and techniques to change doctors' behaviors

The Structured Learning Technique (SLT) and Cumulative Micro Training (CMT) were used in the design of the communication skills training program for medical specialists(34-35). Structured learning focuses on shaping conditions that facilitate acquisition of skills and transfer of these skills to daily practice. Cumulative Micro Training (CMT) is a method in which theoretical instruction, modeling, practicing by role plays, feedback, social and self reinforcement and identifying personal learning points improve professionals' competence in communication skills.

Techniques from Cognitive Behavioral Therapy were adjusted to improve the exploration of symptoms and explanation of MUPS by medical specialists(36). In the exploration phase of the consultation for example doctors were taught explicitly to use the CBT-scheme in their search for connections between patients' cognitions, emotions, behavior that might reinforce the symptoms.

Intervention content

First session, 4 hours

As a result of the previous steps we started the training program with an exercise, which enabled the medical specialists to gain awareness of their personal thoughts, feelings and behavior towards patients with MUPS. They were invited to write associations about a MUPS patient in key-words and categorize these key-words under the headings Cognitions, Emotions and Behavior. Plenary discussion and a search for interrelating factors that reinforce symptoms led to explanation of the theoretical principles of Cognitive Behavioral Therapy. A practical exercise on symptom exploration on Somatic, Cognitive, Emotional, Behavioral and Social aspects of patient's symptoms (SCEBS symptom exploration) was the second exercise. The skills were demonstrated by a physician and a simulated patient and shown on a DVD. Summarizing the patient's worries and informing patients about interrelating factors that reinforce their symptoms was the third exercise. This session ended with a practical exercise in which doctors were taught to present their analysis of the interrelating factors that reinforce symptoms in a drawn vicious circle or downward spiral. Homework consisted of applying the skills in their consultations and reading the manual.

Second session, 4 hours

The session started with sharing the results of practicing the skills of the first session during the homework exercise. Effectively reassuring MUPS patients was practiced. Skills necessary in the management of the expectations of MUPS patients were demonstrated by a DVD and practiced. Discussions about complex referrals and cooperation with the referring physician were facilitated. In exercises skills such as 'how to inform a patient prior to testing' and 'informing GPs properly' were practiced. Homework consisted again of using the skills in real consultations and reading the next section of the manual.

Third session, 4 hours

This session started with the exchange of reports to the GP, written by the specialist about a MUPS patient in the interval between sessions. Discussion about the quality of the letters and feedback by peers and trainers aimed to improve the specialist care and cooperation with the referring GPs. Information and instruction about referring patients to mental health care was provided. In dyad the medical specialists presented cases in which they practiced the new skills from previous sessions and discussed failures and successes. Homework consisted of watching their own videotaped consultations with MUPS patients prior to the training.

Fourth session, 2 hours

The fourth session started with a self-efficacy questionnaire about the required skills for dealing effectively with MUPS(37). The skills on which the doctors evaluated themselves as being less competent were practiced once more. A goal setting exercise at the end of the training reinforced the implementation of the MUPS-focused consultation skills. Participants formulated a personal, specific goal to strengthen their skills during the next weeks in their consultations with MUPS patients. This specific goal was sent back to them on a post-card after a month as a reminder. An evaluation form about the set-up and the content of the training was the closing activity of the training program. Table 2 presents a summary of the MUPS-focused doctor-patient communications skills and table 3 shows an overview of the content of the original GP MUPS-focused training program and the final specialist MUPS-focused training program.

Implementation

In August 2011 the training was completed. An introduction leaflet was developed and a website with information about the course was designed. Medical specialists and residents of six Dutch hospitals could register online as participants of the randomized controlled trial, with courses scheduled in 2012 and 2013.

Table 2 MUPS-focused doctor-patient communication skills in specialist care

Interviewing skills focused on exploring biopsychosocial factors
01 Explores physical symptoms (which, where, when…) (Somatic)
02 Shows interest in the patient's understanding of the problem (Cognitions)
03 Encourages expression of emotions related to symptoms (Emotions)
04 Shows interest in impact of symptoms on patient's activities (Behavior)
05 Shows interest in impact of symptoms on patient's social environment (Social)
06 Acknowledges the reality of patient's symptoms
Information-giving skills about findings and explaining MUPS
07 Summarizes information according all SCEBS items using patient's perspective
08 Frames information in positive language
09 Explains symptoms are not caused by disease
10 Explains perpetuating factors
11 Uses drawings in the explanation of MUPS
12 Acknowledges perspectives of patient concerning symptoms and treatment options
13 Explains perspectives of doctor concerning symptoms and treatment options
14 Connect s perspectives of doctor AND patient
15 Allows time for information to be absorbed
Planning skills concerning follow-up and appointments
16 Explains rationale and possible outcomes of test results prior to testing
17 Effectively tests for comprehension
18 Encourages involvement in decision-making
19 Explores acceptability of treatment and/or follow-up plan
20 Explores barriers to implementation of treatment and/or follow-up plan
21 Summarizes plans for follow-up
22 Displays effective nonverbal empathy in the whole consultation

Evaluation

We designed a research protocol for a randomized controlled trial to measure the effectiveness and efficiency of this communication skills training program for medical specialists focused on MUPS patients. The objective is to improve medical specialist care for MUPS patients.

DISCUSSION AND CONCLUSION

Main findings

The purpose of our paper was the stepwise description of the development of an evidence-based training program for medical specialists focused on patients with MUPS

Table 3 Original GP and final specialist MUPS training program

Original GP MUPS-focused Training Course	Specialist MUPS-focused Training Course
First session	***First session***
Introduction	Introduction
Exploring learning goals	Exploring learning goals
	Reflection on personal cognitions, emotions and behavior towards MUPS patients
Practicing skills:	Practicing skills:
- Exploring Somatic, Cognitive, Emotional, Behavioral and Social Aspects of the complaints (SCEBS)	- Exploring Somatic, Cognitive, Emotional, Behavioral and Social aspects of the complaints (SCEBS)
- Informing patients about MUPS	- Informing patients about MUPS
- Planning	- Drawing vicious circle of maintaining factors for MUPS
Discussion and homework	Discussion and homework
Second session	***Second session***
Exchange of experiences	Exchange of experiences
Practicing skills :	Practicing skills :
- Instruction of symptom diary	- Reassuring effectively
- Evaluation of symptom diary	- Management of expectations
- Reattribution	- Dealing with complex referrals
	- Report findings in letter to GP
Discussion and homework	Discussion and homework
Third session	***Third session***
Exchange of experiences	Exchange and discussion of their letters to GP
Practicing skills :	Treatment of MUPS in Mental Health Care
- Reassuring patients with persistent illness worries	Presentations in couples of case-material and new skills
- Quit reassuring patients with persistent illness worries	
- Challenging alarming thoughts	
- Negotiating final test	
- Referring to mental health care	
Discussion and homework	Discussion and homework
Intervision with participants in small groups	***Individually watching of own videotaped MUPS consultations***
Fourth session	***Fourth session***
Presentation of case-material	Self-efficacy of their MUPS consultation skills
Feedback on audio/video-tapes	Practicing what is still difficult
Practicing what is still difficult	SMART intention for keeping skills in shape
Discussion and evaluation of course	Discussion and evaluation of course

in order to provide physicians with optimal communication tools for effective specialist MUPS care.

Medical specialists reported to profit from the skills in exploring, informing and reassuring patients with MUPS and experienced more satisfaction in their medical encounters with MUPS patients. Specialists and residents experienced the consultation skills training program focused on MUPS patients as useful for their clinical practice.

Comparison with literature

A recent overview of systematic reviews on effective training strategies for teaching communication skills to physicians by Berkhof et al.(38), showed that effective training programs include active, practice-oriented strategies. They identified twelve systematic reviews on communication skills training programs for physicians. Training programs were effective if they lasted for at least one day, were learner-centered, and focused on practising skills. The best training strategies within the programs included role-play, feedback, and small group discussions.

In a crossover randomized controlled trial Fossli Jensen et al. (39) evaluated the effectiveness of a short course in clinical communication for 51 hospital doctors. They demonstrated that a 20-hour course based on the original American Four Habits model could be generalized across medical and national cultures, resulting in a significant improvement in communication skills as measured by the Four Habits Coding Scheme among hospital employed doctors across specialties. These Four Habits were: invest in the beginning, elicit the patient's perspective, demonstrate empathy and invest in the end. Both studies were recently performed and confirmed the chosen set up for our training course for hospital doctors.

Strengths and limitations

The feasibility of the training program was measured by the attendance of the doctors to the course, which was 86%. Second, the training program had a very strong connection with the daily, clinical practice. Based on the steps of the Intervention Mapping the content of the final training has gained more focus and efficiency.

The evaluation of the pilot training program was based on self report, which can be seen as a limitation. Another limitation is that the trainees of the pilot program were all neurologists and residents in neurology. Therefore it is questionable whether the results can be generalized to other medical specialties.

Conclusion

Medical specialists value this evidence-based training program as highly relevant in their consultations with MUPS patients and are willing to participate in this 14-hour consultation skills training program focused on MUPS patients based on experiential

learning, modeling, role-play, feedback and techniques from the Cognitive Behavioral Therapy. Further research on the effectiveness and efficiency of consultation skills training programs for medical specialists focused on MUPS patients aimed at improving medical specialist care for MUPS patients is recommended. We welcome international evaluation of and collaboration on postgraduate MUPS focused education programs for medical specialists and residents.

Practice implications

If the randomized controlled trial demonstrates effectiveness and efficiency of the MUPS focused communication skills training program for medical specialists the intervention could be embedded in postgraduate education of medical specialists and residents.

Conflicts of interest statement

The authors indicated no potential conflict of interest.

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CHAPTER 4

Patients with medically unexplained physical symptoms: training medical specialists to communicate better. A randomized controlled trial.

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ABSTRACT

Background

Patients with medically unexplained physical symptoms (MUPS) are prevalent 25-50% in general and specialist care. Medical specialists and residents often find patients without underlying pathology difficult to deal with, whereas patients sometimes don't feel understood. We developed an evidence-based communication training, aimed to improve specialists' interviewing, information-giving and planning skills in MUPS consultations, and tested its effectiveness.

Methods

The intervention group in this multi-center randomized controlled trial received a 14-hour training program to which experiential learning and feedback were essential. Using techniques from Cognitive Behavioral Therapy, they were stimulated to seek interrelating factors (symptoms, cognitions, emotions, behavior, and social environment) that reinforced a patient's symptoms. They were taught to explain MUPS understandably, reassure patients effectively and avoid unnecessary diagnostic testing. Before and after the intervention training, specialists videotaped a total of six consultations with different MUPS patients. These were evaluated to assess doctors' MUPS-focused communicating skills using an adapted version of the Four Habit Coding Scheme on five-point Likert scales. Participants evaluated the training by self-report on three-point Likert scales. Doctors in the control group received training after completion of the study.

Results

123 doctors (40% specialists, 60% residents) and 478 MUPS patients from 11 specialties were included; 98 doctors completed the study (80%) and 449 videotaped consultations were assessed. Trained doctors interviewed patients more effectively than untrained ones ($p < .001$), summarized information in a more patient-centered way ($p = .001$), and better explained MUPS and the role of perpetuating factors ($p < .05$). No effects on planning skills were found. On a 3-point scale the training was evaluated with 2.79 [CI, 2.75 to 2.83].

Conclusion

MUPS-focused communication training increases the interviewing and information-giving skills of medical specialists. We recommend that the training is incorporated in postgraduate education for medical specialists and residents who frequently encounter patients with MUPS.

INTRODUCTION

Over 50% of newly referred patients to outpatient clinics experience symptoms for which the medical specialist lacks a medical explanation(1). While most medically unexplained physical symptoms (MUPS) disappear within a few months, they can endure for more than one year, and become chronic in 20 to 30% of the patients(2).

Medical specialists often find patients whose symptoms have no underlying pathology difficult to handle, and feel incompetent to find agreement with their patients on problem definition(3-5). The fear of missing a physical disease triggers them to continue medical interventions on MUPS patients, although they achieve low health outcomes and even iatrogenic damage(6-7). On the other hand, many patients with MUPS do not feel understood, and are offended by messages about the supposed non-somatic origins of their symptoms. They experience a lack of empathy and acceptance for their physical symptoms, and suffer as much as patients with a chronic disease(8-9). In short, MUPS are a burden to patients as well as to health professionals(10).

Patient-centered communication in MUPS consultations in secondary care has been found to improve patient outcomes and decrease medical consumption(11). To effectively explore patients' symptoms and inform patients about the nature of MUPS, medical specialists need specific MUPS knowledge combined with practical communication skills(12-14). However, general communication training programs in postgraduate medical education lack the content to integrate the do's and don'ts in MUPS communication. Furthermore, the majority of MUPS research on communication interventions is aimed at primary and mental care. We therefore developed a postgraduate training program for medical specialists focused on MUPS patients and assessed its effects on their communication skills in a randomized clinical trial(15). The study question was: "Do trained medical specialists use more often effective communication skills in consultations with MUPS patients than non-trained medical specialists?"

METHODS

Study design, setting and participants

We designed a randomized controlled trial to evaluate the effectiveness of a communication skills training for medical specialists to improve MUPS specialist care. Medical specialists and residents from six different hospitals in the Netherlands were involved in this study. To participate they had to have consultation hours, in which they encountered MUPS patients, and they had to be willing to videotape three MUPS consultations before and after the intervention phase between June 2011 and April 2014.

The medical receptionist informed the patients about the videotaping of the consulting hours. All patients were informed that videotaping was voluntary and that at any time they may decide to stop the videotaping, and that collected video data would be deleted immediately upon their request.

The medical specialists and residents were instructed to include new and follow-up patients at the end of a consultation only when 'no medical explanation or just a partial medical explanation defined patient's symptoms'.

A team of trained research assistants supported the doctors with recording the MUPS consultations. The unmanned camera was directed at both doctor and patient. After the consultation the research assistant informed the patient about the study and all study related procedures, including further use of the video data and completion of web-based questionnaires. Information about the scope of the study was given by the research assistant after the video consultation, to prevent patient induced bias during the consultation. A patient information letter was provided, and patients were only included in the study after written informed consent was obtained. Upon non-participation or withdrawal, all video data were deleted by the research assistant or database administrator (RV).

After obtaining up to three videotaped consultations of MUPS patients with informed consent for trial participation, the medical specialists and residents were at random allocated to the intervention or the control group by using a web-based randomization program, and stratified by a minimization procedure to ensure balance within each group and overall balance. Stratification factors were medical center and clinical experience (medical specialist versus resident).

About six months after randomization the training for the intervention group was completed, and the research assistants contacted all the specialists and residents to organize the post-measurement videotaping of MUPS consultations. For post-measurements new patients were recruited who had not participated in the pre-measurements.

Intervention

The intervention was a 14-hour MUPS-focused communication skills training for medical specialists and residents consisting of four sessions and has been described elsewhere(15). The training was organized in small groups (7 to 12 participants) and performed by one trainer and one assistant trainer. All trainers were experienced in postgraduate education and MUPS skills for medical specialists. In a special workshop the trainers were instructed (AW and AHB) about the training model and the 22 MUPS-focused communication skills, which were divided into (I) interviewing skills to explore biopsychosocial factors, (II) information-giving skills about discussing findings and explaining MUPS and (III) planning skills aimed at follow-up and making appointments.

In short, the training program consisted of experiential learning, role-play and feedback as crucial elements for learning MUPS-specific communication skills. Using techniques from Cognitive Behavioral Therapy, trainers stimulated the medical specialists to search for interrelating factors (symptoms, cognitions, emotions, behavior, and social environment) that reinforced patients' symptoms. They were taught to inform and reassure patients effectively and offer plausible and understandable explanations for experiencing MUPS, reflected in a clear advice and report to the general practitioner. To evaluate the program, participating doctors were requested to fill out a self-report questionnaire during the last training session.

Outcome measures on doctors' communication skills

The application of communication skills was measured by observation of the videotaped consultations. For the assessment of the communication skills we used the validated Four Habits Coding Scheme (FHCS), adjusted in a way that it measured precisely the MUPS communication skills of the training program(16). The application of these skills by the medical specialists and residents was rated on a five-point Likert scale. A codebook described every skill on different levels (1 = not or inadequately performance, 3 = average performance, and 5 = optimal performance of the skill). Three trained psychologists (MJ, DA, NK) blindly scored the videotaped consultations independently, which meant that they did neither have any knowledge about doctor or patient nor about the time the videotape was made (before or after the training period) and the intervention or control status of the doctor. The researcher (AW) randomly allocated the videotaped consultations to the raters. To obtain adequate inter-rater reliability 50 videotaped consultations were rated by all raters, differences in rating were discussed and the appointments for rating sharpened; 120 tapes were rated in couples of two raters to measure inter-rater reliability scores. The quality of the assessment was monitored in eleven workshops during the study.

Sample size calculation and statistical analysis

To detect a 20% change in consultation skills of doctors with a 5% two-sided alpha and a 10% beta, an estimated number of 55 doctors per group were needed. Allowing for 10% drop out of doctors we aimed to recruit 60 doctors per group, which meant a total number of 120 doctors.

All analyses were done (LA, JVS, AW) with SPSS version 21. Nominal variables were calculated with frequencies and cross tables. Estimated marginal means and SE's of the scale scores were calculated for both the intervention group and the control group using random effects ANOVA, taking into account the clustering of patients per doctor. We also fitted this model to calculate and to compare the differences between pre- and post-measurements for both groups.

Medical Ethics Review and Approval

The Medical Ethics Research Committee of the Erasmus MC reviewed the study design and officially approved the study. The Boards of the other five participating hospitals officially agreed to participate in the study, advised by local Medical Ethics Committees. The trial was registered at the Dutch Trial Registration (NTR2612, www.trialregister.nl).

RESULTS

Participants

There were 159 doctors (medical specialists and residents) from eleven different specialties eligible for the study between June 2011 and April 2014; 123 of them were able to videotape consultations with MUPS patients at baseline. Sixty-two doctors were allocated to the intervention and 61 to the control group; 98 doctors (50 intervention and 48 control group) completed the study by including one or more patients on videotape. Twenty-five doctors dropped out of the study due to lack of consulting hours with MUPS patients during post-measurements (n=10), job switch to another hospital (n=8), withdrawal (n=4) or private circumstances (n=3). There were no statistically significant differences between doctors in the intervention and control group concerning background characteristics (see Table 1).

Videotaped consultations with MUPS patients

A total of 478 MUPS patients participated in the study between November 2011 and April 2014: 278 at baseline and 200 at follow-up. Most patients were female (63%), had an average age of 46 years (SD=16) and visited the outpatient clinics for Internal Medicine (n = 193) or Neurology (n = 94). The included 478 patients provided 520 videotaped consultations: in 42 cases the doctor videotaped two consultations of the same patient within pre- or post-measurements. To maintain independent statistical analysis only the first one of these two consultations was used. A total of 29 videotaped consultations were unsuitable for analysis due to technical imperfections (n=20), exclusion because patients' symptoms were explained by a somatic disease (n=5) or patients' withdrawal (n=4). The 449 videotaped consultations were assessed by three psychologists with sufficient inter rater reliability (ICC 0.78). Table 2 shows patient characteristics. Figure 1 shows the CONSORT diagram.

Trained medical specialists and residents showed a bigger increase in exploring patients' cognitions ($p < .001$) and the impact of the symptoms on patients' behaviors ($p = .001$), social environment ($p < .001$) and emotions ($p < .001$) than the untrained medical specialists and residents. Trained medical specialists and residents also summarized information in a more patient-centered way ($p = .001$) and told the patient more

Table 1 Doctor characteristics

Participating doctors	Intervention group N=62	Control group N=61
Gender		
Male	28 (45%)	24 (39%)
Female	34 (55%)	37 (61%)
Resident/Specialist		
Resident	36 (58%)	38 (62%)
Specialist	26 (42%)	23 (38%)
Age (SD)	36.7 (8.9)	36.6 (10.1)
Years of experience (SD)	7.5 (7.9)	7.9 (9.4)
Specialism		
Anesthesiology	2	4
Dermatology	2	0
Gynecology	2	5
Internal Medicine	30	25
ENT	0	4
Lung Diseases	1	1
Gastroenterology	4	7
Neurology	13	9
Rheumatology	6	1
Cardiology	1	0
Rehabilitation Medicine	1	3
Hospital		
Albert Schweitzer Hospital Dordrecht	2	4
Diakonessenhuis Utrecht	15	11
Erasmus MC University Medical Center Rotterdam	18	22
Maasstad Hospital Rotterdam	3	2
MC Haaglanden The Hague	13	12
St Antonius Hospital Nieuwegein	11	10

frequently about interrelating factors and MUPS (p = .017) than the untrained specialists and residents. No effects were found on the skills for making plans and follow-up appointments. The skills of exploring physical symptoms, acknowledging the reality of patient's symptoms, explaining doctor's perspective concerning symptoms and treatment options, allowing time for information to be absorbed, summarizing appointments and displaying nonverbal empathy were already reasonably apparent in both groups before randomization. Table 3 shows the effects on doctors' MUPS communication skills.

Table 2 Patient characteristics of assessed videotaped consultations

Participating patients	Intervention group N=229	Control group N=220
Gender		
Male	76 (33%)	90 (41%)
Female	153 (67%)	130 (59%)
Age (SD)	45.9 (16.2)	46.0 (16.2)
Specialism		
Anesthesiology	8	16
Dermatology	3	0
Gynecology	5	16
Internal Medicine	106	87
ENT	0	15
Lung Diseases	4	5
Gastroenterology	13	31
Neurology	57	37
Rheumatology	27	0
Cardiology	2	2
Rehabilitation Medicine	6	13

Evaluation of the training program

Medical specialists and residents appreciated the training program as very useful for daily practice. The intervention group lost 3 doctors before the training started. A total of 92 doctors received the MUPS communication training (doctors of the control group were offered the training after they finished all measurements, and 33 of them obtained the training). They evaluated the usefulness of the training, concerning exercises, skills, literature, duration and feedback, with 2.79 [CI, 2.75 to 2.83] on a three point Likert scale (with 1 as minimum and 3 as maximum score).

Despite the value of the MUPS communication skills for daily practices, medical specialists and residents experienced consultations with MUPS patients from different ethnic background as extremely difficult. We therefore performed post-hoc analyses on differences between MUPS patients related to ethnicity. It appeared that trained doctors explored and informed MUPS patients with a non-western ethnic background (n=88) less effectively ($p < .01$) than patients with a Dutch background. We then also performed post-hoc analyses on differences between MUPS patients related to gender, concerning the fact that the majority of the included patients were female. We found that trained doctors used the exploration skills more effectively in consultations with female MUPS patients than in consultations with male MUPS patients ($p < .001$).

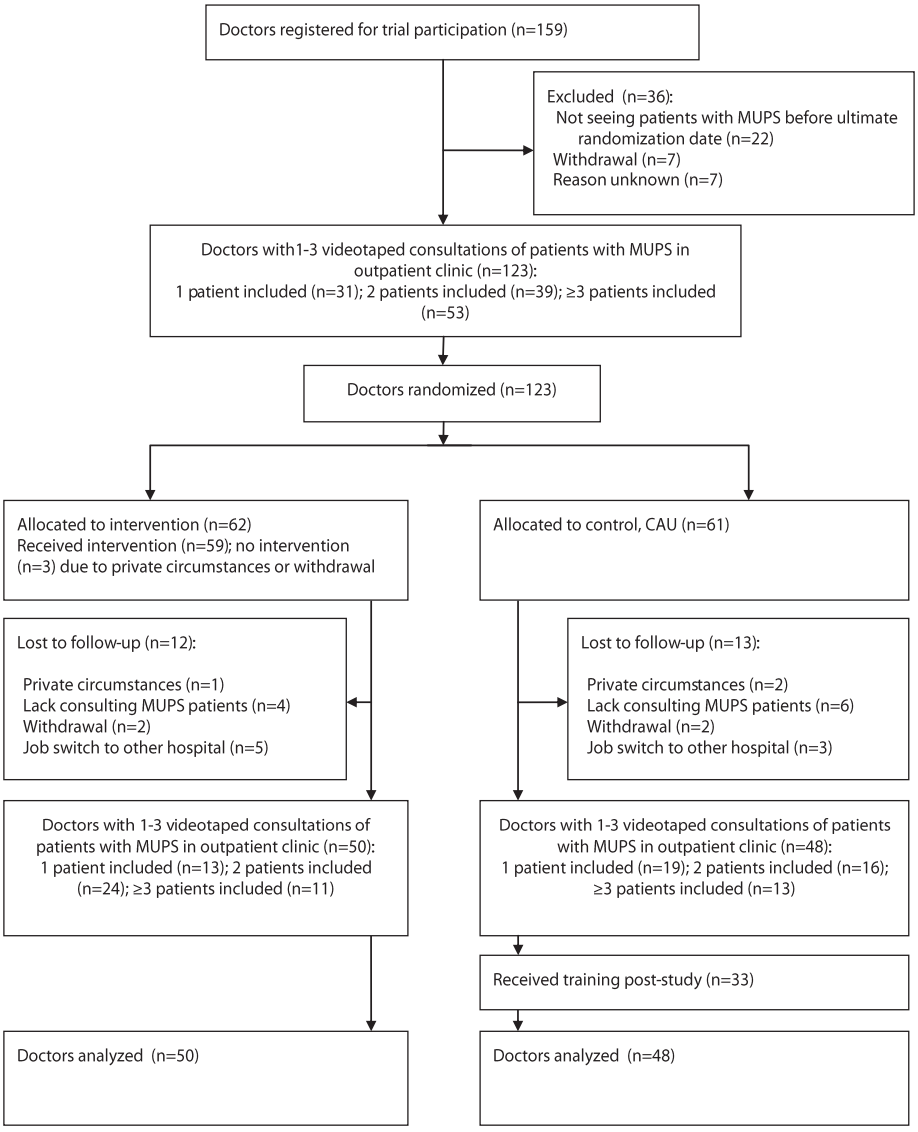

Figure 1 CONSORT 2010 Flow Diagram

Table 3 Effects on doctor communication skills

Estimated marginal means on scale range 1-5; 1=min., 5=max. score
Intervention group = IG, Control group = CG, pre=pre-measurement, post=post-measurement

MUPS communication skills	IG_pre N=137 Mean (SE)	IG_post N=92 Mean (SE)	CG_pre N=125 Mean (SE)	CG_post N=95 Mean (SE)
I Interviewing skills focused on exploring biopsychosocial factors				
I.1 Interested in the patient's understanding of the problem***	2.3 (0.15)	3.6 (0.17)	2.4 (0.15)	2.6 (0.17)
I.2 Shows interest in impact of symptoms on patient's activities/behavior**	2.5 (0.16)	3.5 (0.19)	2.5 (0.16)	2.6 (0.19)
I.3 Shows interest in impact of symptoms on patient's social environment***	1.5 (0.13)	2.7 (0.15)	1.6 (0.13)	1.7 (0.15)
I.4 Encourages expression of emotions related to symptoms***	2.2 (0.15)	3.0 (0.17)	2.2 (0.15)	2.0 (0.17)
I.5 Explores physical symptoms	3.5 (0.17)	3.7 (0.20)	3.7 (0.17)	3.5 (0.20)
I.6 Acknowledges the reality of patient's symptoms	3.5 (0.11)	3.8 (0.13)	3.6 (0.12)	3.5 (0.13)
TOTAL ***	15.5 (0.60)	20.2 (0.69)	16.0 (0.62)	16.01(0.69)
II Information-giving skills about findings and explaining MUPS				
II.07 Summarizes information according all SCEBS items using patient's perspective**	1.1 (0.06)	1.5 (0.07)	1.2 (0.06)	1.1 (0.07)
II.08 Frames information in positive language	2.8 (0.15)	3.2 (0.18)	2.8 (0.15)	2.8 (0.18)
II.09 Explains symptoms are not caused by disease	2.1 (0.15)	2.8 (0.18)	2.2 (0.16)	2.4 (0.18)
II.10 Explains perpetuating factors*	1.8 (0.14)	2.7 (0.16)	1.8 (0.14)	2.0 (0.16)
II.11 Uses drawings in the explanation of MUPS	1.1 (0.06)	1.3 (0.07)	1.0 (0.06)	1.1 (0.07)
II.12 Acknowledges perspectives of patient concerning symptoms and treatment options	2.8 0.14)	3.1 (0.17)	2.6 (0.15)	2.5 (0.17)
II.13 Explains perspectives of doctor concerning symptoms and treatment options	4.2 (0.12)	4.2 (0.14)	4.2 (0.12)	4.1 (0.14)
II.14 Connect perspectives of doctor AND patient	2.5 (0.15)	2.9 (0.17)	2.3 (0.15)	2.4 (0.17)
II.15 Allows time for information to be absorbed	3.7 (0.12)	3.6 (0.14)	3.8 (0.12)	3.7 (0.14)
TOTAL*	22.1 (0.70)	25.4 (0.82)	21.7 (0.72)	22.2 (0.82)

Table 3 Effects on doctor communication skills (continued)

MUPS communication skills	IG_pre N=137 Mean (SE)	IG_post N=92 Mean (SE)	CG_pre N=125 Mean (SE)	CG_post N=95 Mean (SE)
III Planning skills concerning follow-up and appointments				
III.16 Explains rationale and possible outcomes of test results prior to testing	2.6 (0.16)	2.8 (0.19)	2.6 (0.17)	2.5 (0.19)
III.17 Effectively tests for comprehension	3.0 (0.13)	3.1 (0.15)	3.0 (0.13)	2.8 (0.15)
III.18 Encourages involvement in decision-making	2.2 (0.13)	2.1 (0.15)	2.1 (0.13)	2.0 (0.15)
III.19 Explores acceptability of treatment and/or follow-up plan	2.5 (0.13)	2.2 (0.16)	2.4 (0.13)	2.4 (0.15)
III.20 Explores barriers to implementation of treatment and/or follow-up plan	1.6 (0.10)	1.6 (0.13)	1.7 (0.11)	1.6 (0.12)
III.21 Summarizes plans for follow-up	4.0 (0.13)	4.0 (0.15)	4.2 (0.13)	4.0 (0.15)
III.22 Displays effective nonverbal empathy in the whole consultation	4.2 (0.11)	4.3 (0.13)	4.0 (0.11)	3.9 (0.13)
TOTAL	20.1 (0.54)	19.9 (0.64)	19.9 (0.56)	19.4 (0.63)

P-value contrast: 'IG post-training minus IG pre-training' compared to 'CG post-training minus CG pre-training'
***=p < .001, **=p < .01, *=p <.05

DISCUSSION

Main findings

The main aim of the study was to evaluate the effectiveness of our MUPS-focused training for medical specialists on doctors' communication skills, which to our knowledge is a novelty in secondary care. The results clearly indicate that medical specialists who had taken the training had better interviewing and information-giving communication skills in MUPS consultations than those who had not. Participants rated the training as very useful.

Comparison with literature

Our findings are in line with research in general care. Aiarzaguena et al. showed that GPs benefit from a MUPS-focused communication training program(17-18). GPs valued two key elements: the structure, which facilitated a more comfortable relationship with MUPS patients; and the options of transferring the skills to a broader spectrum of patients with psychosocial problems. Rosendal et al. developed a brief MUPS-focused training program for GPs, which changed GPs' attitude towards patients with somatoform disorders(19). Rief et al. designed a one-day workshop for GPs on managing MUPS patients, in which the topics included how to communicate with MUPS patients, and when to start and stop medical examinations and treatment options. GPs valued this workshop as highly relevant to their daily practice(20). By stressing that postgraduate education in MUPS-focused knowledge and communication skills is both relevant and necessary in general care, these studies reinforce the importance of our results for specialist care.

Strengths and limitations

A strength of our study is the fact that our engagement of 123 doctors from six different hospitals and eleven specialties in the study enabled us to assess the effectiveness of the training in different medical settings. To reach this number of participants, we decided to switch from a single to a multi-center study design, and extended the inclusion period by a full year.

In our search for a valid instrument to assess specialists' communication skills we chose the Four Habits Coding Scheme (FHCS) and integrated the defined 22 MUPS communication skills within this FHCS. By measuring precisely the skills that were subject of the training program, this enriched MUPS-FHCS contributed to the strength of this study.

A further strength of the study is that our outcomes at doctors' level were rated at the highest level of performance according to Miller. This four-level scale discerns *knows* (level 1), *knows how* (2), *shows* (3) and *does* (4). The *does* level refers to measurement of clinical performance in real practice(21).

This study also has weaknesses. One limitation concerns the average number of videotaped consultations per doctor, which was lower than we had expected. The three MUPS patients per measurement per doctor were not always achieved. Sometimes patients refused to be videotaped or didn't show up at consulting hours. However, 449 MUPS consultations for analysis appeared to be enough to prove the effectiveness of the training.

In their consultations with patients from different ethnic backgrounds, doctors were hampered by the lack of three prerequisites: time, professional interpreters and knowledge of cultural diversity. Most of today's patients in big cities, such as Rotterdam, are culturally rooted in other countries. It may therefore be a weakness that the cultural sensitivity of the training program was not more developed. The fact that most MUPS patients are female may explain why doctors used these MUPS skills more in consultations with female patients than in those with male patients.

Conclusion

Our MUPS-focused communication training significantly increases the interviewing and information-giving skills of medical specialists and residents. We conclude that we have developed a feasible and effective training program that enables medical specialists and residents to improve their consultations with MUPS patients. We therefore recommend that the training is incorporated in postgraduate education for medical specialists and residents, who often encounter such patients.

Implications for future research

Due to the presentation of their own case material during the training, medical specialists achieved greater awareness of MUPS in outpatient clinics. In some cases they noted that use of care by patients with persistent MUPS was extremely high: some patients had consulted the Emergency Department (ED) and other specialties up to 20 times in the previous three months. Future research on the prevalence and follow up of MUPS patients in the ED will help to identify patients' needs, and indicate how MUPS care should improve in specialist care.

Future studies and training programs should reconsider the cultural and gender sensitivity of the training model, and adjust it where necessary.

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CHAPTER 5

Training specialists to write appropriate reply letters to general practitioners about patients with medically unexplained physical symptoms; a cluster-randomized trial.

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ABSTRACT

Objectives

To evaluate effects of a communication training for specialists on the quality of their reply letters to general practitioners (GPs) about patients with medically unexplained physical symptoms (MUPS).

Methods

Before randomization, specialists included ≤3 MUPS patients in a multi-center cluster-randomized trial. In 14 hours of MUPS-specific communication training, 2.5 hours focused on reply letters. Letters were discussed with regard to reporting and answering GPs' referral questions and patients' questions, and to reporting findings, explaining MUPS with perpetuating factors and giving advice. After the training, all doctors again included ≤3 MUPS patients. Reply letters to GPs were assessed for quality and blindly rated on a digital scale.

Results

We recruited 478 MUPS patients and 123 specialists; 80% of the doctors wrote ≥1 reply letters, 285 letters were assessed. Trained doctors reported (61% versus 37%, OR=2.55, $F(1,281)=6.60$, $p_{group*time} = .01$) and answered (63% versus 33%, OR=3.31, $F(1,281)=5.36$, $p_{group*time} = .02$) patients' questions more frequently than untrained doctors.

Conclusion

Training improves reply letters with regard to patients' questions, but not with regard to the following: GPs' referral questions, somatic findings, additional testing, explaining, and advice.

Practice implications

Training specialists to write appropriate reply letters needs more focus on explanation and advice. To evaluate effects of a communication training for specialists on the quality of their reply letters to general practitioners (GPs) about patients with medically unexplained physical symptoms (MUPS).

INTRODUCTION

Patients with medically unexplained physical symptoms (MUPS) are substantially prevalent in the caseload of general practitioners and medical specialists(1-2). Medical specialists find patients with invalidating symptoms without underlying pathology much more difficult to handle than patients with symptoms that are medically explained(3). Specialists use a predominant disease-centered approach that seems inadequate for many of these symptom-prompted encounters(4). On the other hand, many patients with MUPS do not feel understood, and belief that their symptoms are not taken seriously and need further investigation(5-6). Repeated referrals and medical investigations suggest that patients' needs are unmet and that healthcare is used inefficiently - suggestions that may be reinforced if the exchange of information in general practitioners' (GPs') referrals and specialists' reply letters is inadequate(7-11). Various studies have indicated that while GPs should be more specific about their reasons for referral, specialists should focus more on meeting GPs' need for information(11-13).

After an outpatient clinic visit, GPs often discuss specialists' findings with the patient; if necessary, they can correct the patient's misinterpretations and aim to increase patients' quality of life by perpetuating factors that maintain the symptoms. As MUPS can be explained and interpreted in various, sometimes inconsistent ways, it is important for specialists' reply letters to contain valid information that supports GPs and patients in gaining trust, reassurance and effective follow-up care(14).

To improve reply letters regarding MUPS patients, we therefore developed postgraduate training for medical specialists that included communication at the interface between specialist care and primary care(15). To determine whether this training improved specialists' communication to GPs we measured whether reply letters about referred MUPS patients of trained medical specialists contained more specific information than reply letters of untrained medical specialists.

METHODS

Study design

We designed a multi-center cluster-randomized trial to evaluate the effectiveness of a communication skills training for medical specialists to improve MUPS specialist care. Part of this training focused on specialists' reply letters to GPs. Medical specialists and residents from six different hospitals[2] in the Netherlands were involved in this study. To

2 Erasmus MC University Medical Center Rotterdam, Maasstad Hospital Rotterdam, Albert Schweitzer Hospital Dordrecht, MC Haaglanden The Hague, St Antonius Hospital Nieuwegein and Diakonessenhuis Utrecht/Zeist.

participate they had to have consultation hours, in which they encountered patients with MUPS as well as symptoms stemming from a somatic disease that are more severe than might be expected on the basis of disease parameters.

The medical receptionist briefly informed the patients about the study. Patients' participation was voluntary; they could decide to end it at any time, with their data being deleted immediately upon their request. The medical specialists and residents were instructed to include new and follow-up patients at the end of a consultation only when 'no medical explanation or just a partial medical explanation defined patient's symptoms. After the consultation the research assistant informed the patient about all study-related procedures, including further use of data and completion of web-based questionnaires. To prevent patient-induced bias during the consultation, more detailed information about the scope of the study was given by the research assistant afterwards. A patient information letter was provided, and patients were included in the study only after written informed consent had been obtained. Upon non-participation or withdrawal, all data were deleted by the research assistant.

After the medical specialists and residents had obtained up to three MUPS patients, a web-based randomization program was used to allocate them at random to the intervention or the control group. To ensure overall balance and balance within each group, they were stratified by a minimization procedure. Stratification factors were medical center and clinical experience (medical specialist versus resident).

Approximately six months after randomization, the research assistants contacted the specialists and residents to organize the post-measurement inclusion of MUPS patients. For post-measurements, new patients were recruited who had not participated in the pre-measurements. Doctors allocated to the intervention group were trained in MUPS communication skills, whereas doctors allocated to the control group treated patients with care as usual.

Intervention

The MUPS-focused communication skills training for medical specialists and residents consisted of four sessions with a total duration of 14 hours; it has been described extensively elsewhere(15). To summarize: the training was organized in small groups (7 to 12 participants) and provided by two trainers experienced in post-graduate education and MUPS skills for medical specialists. All the trainers were instructed (by AW and AHB) about the training model. Medical specialists were informed about the Dutch multidisciplinary guideline for MUPS and somatoform disorders and they practiced patient - centered communication(15).

One hundred and fifty minutes of the overall training were devoted to reply letters. Participants exercised on writing referral letters and peer-reviewed each other's real-practice reply letters. Letters were discussed with regard to the following: reporting and

answering GPs' referral questions and patients' questions, reporting of findings, explaining MUPS with perpetuating factors, and giving advice.

Data collection

Specialists' reply letters to GPs about the MUPS patients included were retrieved by a research assistant (GL), collected through the electronic patient records and anonymously uploaded into the research database. If reply letters had not been traced six months after the consultation date, the researcher (AW) defined them as missing.

Outcome measure: quality of reply letters

The quality of reply letters was derived from the insights of the Dutch multidisciplinary guidelines on MUPS. It was measured on the basis of each of the eight following items, and also by the sum of these items: 1. reporting and 2. answering GPs' referral questions; 3. reporting and 4. answering patients' questions; 5. reporting of somatic findings; 6. reporting of additional testing; 7. explaining MUPS and perpetuating factors; 8. and giving advice to patient and GP(16). Each item was coded on a digital scale (0 = no or non-specific information, 1 = specific information).

Rating procedure

Six trained doctors, (two neurologists (MW, EV), two internists (PD,AB), one gastroenterologist (AO) and one GP (AHB)) were instructed in a workshop about rating procedures. They blindly scored the reply letters independently, which meant that they had no knowledge about doctor or patient, no knowledge about when the reply letters had been written (before or after the training period) and no knowledge about the intervention or control status of the doctor. The researcher (AW) randomly allocated the reply letters to the raters. To obtain adequate inter-rater reliability the first 10 reply letters were rated by all raters, differences in rating were discussed and rating procedures sharpened. We considered the rating GP (AHB) to be the gold standard for the right scores. To measure inter-rater reliability, another 14 reply letters were assessed in four different rounds by all six raters. After each round, the researcher (AW) discussed the ratings with the GP, resolved disagreements by arguments and provided feedback to all the raters.

Statistical analysis

The dependent variables for this paper were the eight, dichotomous items that were or are not present in the reply letters, together with their sum score. The independent variables were the treatment group (control versus intervention) and the time of the measurement (pre-training or post-training of the intervention group). All analyses were performed (LA, AW, JS) with the use of SPSS software, version 21. Nominal variables were

calculated with frequencies and cross tables. Means and standard deviations (SDs) of the scale scores were calculated for the intervention group and control group. Differences between pre- and post- measurements for both groups were compared across the groups using the generalized linear mixed model, taking account of the nominal measurement level of the dependent variable and of the clustering of patients within doctors. A random doctor effect was included in the models to accommodate for the correlation among patients within the same doctor. We calculated the odds ratios of the intervention group versus the control group on the measurements before and after the training of the intervention group. To check whether there was a difference between the OR's before versus after the training, we looked at the p-value of the interaction effect of treatment group by measurement time (before or after the training). To check whether the difference between the sumscore before and after the training varied across the control group versus the intervention group, we looked at the F-statistic and the corresponding p-value of the interaction effect of treatment group by measurement time (before and after the training), based on the generalized linear mixed model with the sumscore as dependent variable. The significance level was set at .05.

Medical Ethics Review and Approval

The Medical Ethics Research Committee of the Erasmus MC reviewed the study design and approved the study. The Boards of the other five participating hospitals officially agreed to participate in the study, on the basis of advice by their local Medical Ethics Committees. The trial was registered at the Dutch Trial Registration (NTR2612).

RESULTS

Participants

Between November 2011 and April 2014, a number of 123 medical specialists and residents from eleven specialties were included in the study. Sixty-two doctors were allocated to the intervention and 61 to the control group. All participants had included at least one MUPS patient in the pre- measurements. Eighty percent completed the study by including at least one MUPS patient in the post-measurements. There were no statistically significant differences between intervention and control doctors with regard to background characteristics (Table 1). The CONSORT diagram of the study is described in Figure 1.

Reply letters about MUPS patients

A total of 478 MUPS patients participated in the study, 278 at baseline and 200 at follow-up, of whom 170 (61%) respectively 115 (58%) had a reply letter to the GP in

Table 1 Doctor characteristics

Participating doctors	Interventions N=62	Controls N=61
Gender		
Male	28 (45%)	24 (39%)
Female	34 (55%)	37 (61%)
Resident/Specialist		
Resident	36 (58%)	38 (62%)
Specialist	26 (42%)	23 (38%)
Age (SD)	36.7 (8.9)	36.6 (10.1)
Years of experience (SD)	7.5 (7.9)	7.9 (9.4)
Specialism		
Anesthesiology	2	4
Dermatology	2	0
Gynecology	2	5
Internal Medicine	30	25
ENT	0	4
Lung Diseases	1	1
Gastroenterology	4	7
Neurology	13	9
Rheumatology	6	1
Cardiology	1	0
Rehabilitation Medicine	1	3
Hospital		
Albert Schweitzer Hospital Dordrecht	2	4
Diakonessenhuis Utrecht	15	11
Erasmus MC University Medical Center Rotterdam	18	22
Maasstad Hospital Rotterdam	3	2
MC Haaglanden The Hague	13	12
St Antonius Hospital Nieuwegein	11	10

their electronic patient record. Over half of the patients were female (63%); their average age was 46 (SD=16). Patients visited the outpatient clinics for Internal Medicine (37%), Neurology (31%), Gastroenterology (7%), Anesthesiology (6%) or one of the other clinics (19%). On the basis of the symptoms described in the reply letters, they were classified into the following clusters: fatigue (26%), gastrointestinal (11%), musculoskeletal (18%), malaise (3%), other symptoms such as headache or dizziness (15%), or combinations of two or more symptom clusters (26%). The majority of the patients (72%) had symptoms in one cluster, which indicates mild MUPS including fair chances for recovery. Patients

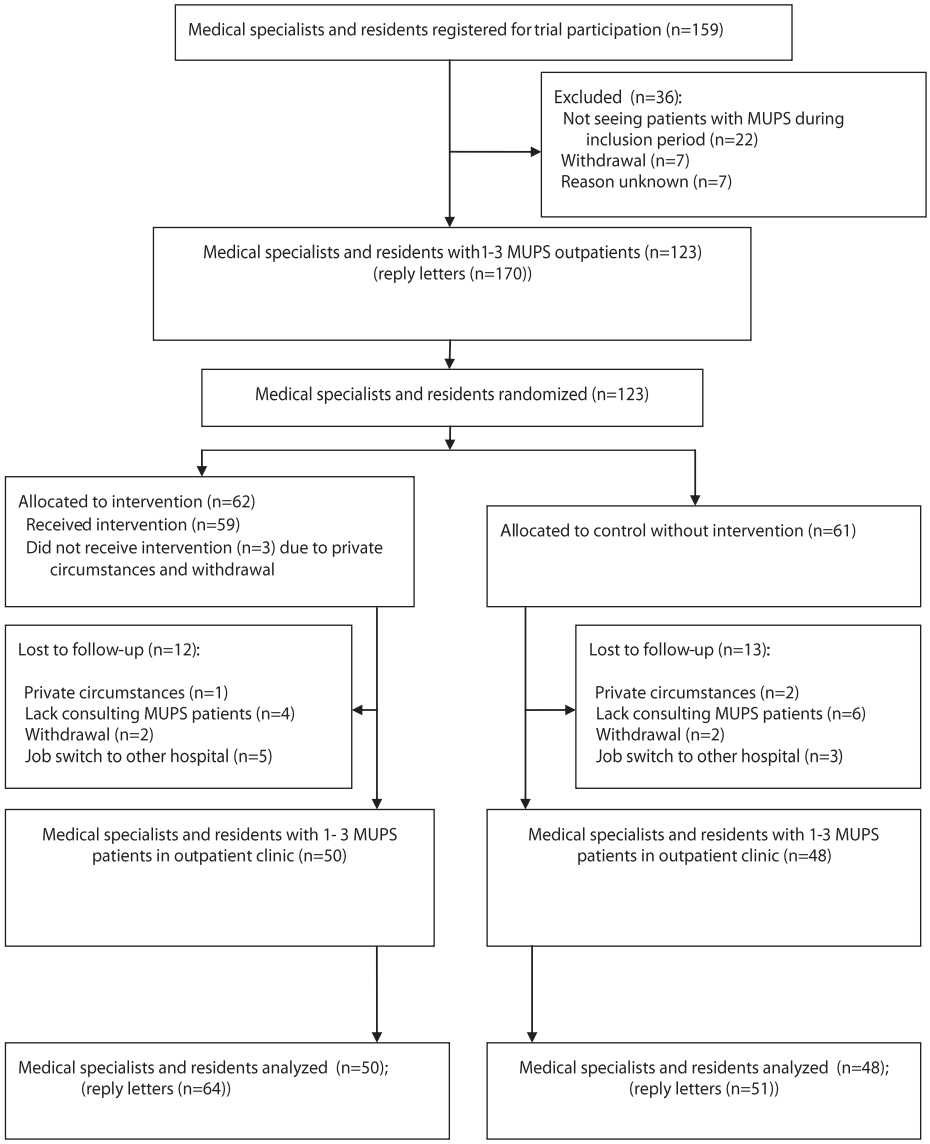

Figure 1 CONSORT 2010 Flow Diagram

with combined symptoms had fatigue more than they had other symptoms. Table 2 shows the patient characteristics.

From 193 patients (40,4%) the reply letters were lacking, mainly because no letter was found in their electronic patient record six months after the consultation (n=119); often these patients appeared to be chronic patients with co-morbid MUPS. In some cases the hospital policy prohibited access to electronic patient records (n=35) or the receptionist

lacked time to search for the letters (n=16). In a few cases technical problems-such as the file could not be opened or modified (n=7), and invalid patient identification numbers (n=7) caused problems in retrieving reply letters. Exclusion of non-MUPS patients (n=5), or patients' withdrawal (n=4) were reasons for not retrieving patient's reply letter. Post-measurements were performed an average of 82 days (SD 54, 1-287) after the training. The reply letters were written an average of 112 days (SD 97, 2-361) after the training.

Table 2 Patient characteristics

Participating patients with reply letters (285)	**Interventions (n= 156)**	**Controls (n= 129)**
Gender		
Female	103 (66%)	76 (59%)
Male	53 (34%)	53 (41%)
Age in years (SD)	45.3 (17.0)	46.9 (15.5)
Specialism		
Anesthesiology	6	11
Dermatology	2	0
Gynecology	3	9
Internal Medicine	63	42
ENT	0	6
Lung Diseases	0	3
Gastroenterology	12	9
Neurology	52	35
Rheumatology	13	0
Rehabilitation Medicine	5	7
MUPS clusters		
Fatigue	37 (24%)	36 (28%)
Gastrointestinal	17 (11%)	14 (11%)
Musculoskeletal	31 (20%)	20 (16%)
Malaise	3 (2%)	5 (4%)
Other symptoms	26 (17%)	16 (12%)
Combined symptoms	41 (26%)	34 (26%)
Missing	1 (1%)	4 (3%)
Hospital		
Albert Schweitzer Hospital Dordrecht	10	9
Diakonessenhuis Utrecht	37	32
Erasmus MC University Medical Center Rotterdam	32	28
Maasstad Hospital Rotterdam	7	5
MC Haaglanden The Hague	19	16
St Antonius Hospital Nieuwegein	26	20

Assessment of the reply letters

Twenty-four of the 285 reply letters were assessed by all six medical doctors (see paragraph 2.5). These letters had sufficient inter-rater reliability (Kappa 0.6 and Phi 0.6) between the rating GP (AHB) as the gold standard and the other five raters.

Table 3 shows the effects of the intervention on the quality of reply letters. We found no differences on baseline scores between control and intervention group on all variables. The effects of the training were significantly increased frequencies of reporting (61% versus 37%, OR=2.55, $F(1,281)=6.60$, $p_{group*time} = .01$) and answering (63% versus 33%, OR=3.31, $F(1,281)=5.36$, $p_{group*time} = .02$) patients' questions. No significant effects were found with regard to GPs' referral questions, somatic findings, additional testing, explaining and advice.

The average of the sumscores is about 4 (Table 3). Since we were coding 8 features, this means that the reply letters contained about 50% of the information we would have expected. Less than 2% of the letters contained no features at all, while about 7% of the letters contained all eight features. Sixty percent of the letters included four or less features. The modus of the number of features was equal to three, 20% of all letters contained 3 features. The most frequent combinations of the features mentioned in the letters were "Reporting of somatic findings"+"Reporting of additional testing"+"Giving advice to patient and GP" (10% of the letters), "Reporting of somatic findings"+"Reporting of additional testing" (10%) and "All eight features" (7%).

The sumscore of all eight items showed no statistically significant overall effect of the training ($F(1,281)=3,22$, $p = .07$).

DISCUSSION AND CONCLUSION

Main findings

While trained medical specialists and residents reported and answered patients' questions more in their reply letters to GPs than untrained doctors did, the only effect of our training involved the improved frequency with which patients' questions were addressed in reply letters. The negative findings in the items 'reporting GP's referral question' and 'answering GP's referral question' can be explained by the fact that these items are dependent on the information in the GP's referral letter to the specialist. If a GP does not present a referral question, the specialist cannot report or answer it. Our observation that GPs' questions are hardly answered, means that both medical specialists and GPs need to be trained in writing appropriate referral and reply letters in order to improve health care for patients with MUPS. Unsurprisingly, the items 'reporting of somatic findings' and 'reporting additional testing' were well developed among specialists and left

Table 3 Doctor communication scores in reply letters

Reply letters analyzed (n=285); Intervention group = Intervention, Control group = Control. Differences between pre- and post measurements for both groups were compared across the groups using the generalized linear mixed model. Odds ratio's of intervention versus control group were calculated separately for the pre-measurements and for the post-measurements. To compare the effect of the post-measurements to the effect of the pre-measurements, P-values are presented of the interaction effect of treatment group by measurement time (before or after the training).

	Pre-training Measurements			Post-training Measurements			
	Control (n=78)	Intervention (n=92)	OR_Pretraining	Control (n=51)	Intervention (n=64)	OR_Posttraining	P Value OR_Pre versus OR_Post[1]
GP's referral question is reported	n=26 (33%)	n=33 (33%)	1.04 (0.48-2.28)	n=16 (32%)	n=28 (44%)	1.73 (0.74-4.05)	F(1, 281) = 1.40, p=.24
GP's referral question is answered	n=23 (30%)	n=34 (37%)	1.33 (0.63-2.82)	n=17 (33%)	n=26 (41%)	1.37 (0.59-3.22)	F(1, 281) = 0.04, p=.84
Patient's question is reported	n=32 (41%)	n=30 (33%)	0.69 (0.35-1.35)	n=19 (37%)	n=39 (61%)	2.55 (1.06-6.12)	F(1, 281) = 6.60, p=.01*
Patient's question is answered	n=25 (32%)	n=30 (33%)	1.03 (0.51-2.09)	n=17 (33%)	n=40 (63%)	3.31 (1.47-7.46)	F(1, 281) = 5.36, p=.02*
Reporting of somatic findings	n=63 (81%)	n=79 (86%)	1.67 (0.60-4.63)	n=43 (84%)	n=57 (91%)	1.71 (0.55-5.34)	F(1, 281) = 0.03, p=.86
Reporting of additional testing	n=55 (71%)	n=75 (82%)	2.15 (0.86-5.38)	n=39 (77%)	n=48 (75%)	0.99 (0.33-2.92)	F(1, 281) = 2.11, p=.15
Explaining MUPS and perpetuating factors	n=23 (30%)	n=25 (27%)	0.87 (0.41-1.81)	n=16 (31%)	n=26 (41%)	1.50 (0.59-3.81)	F(1, 281) = 1.07, p=.30
Giving advice to patient and GP	n=48 (62%)	n=50 (54%)	0.75 (0.35-1.57)	n=35 (69%)	n=42 (66%)	0.82 (0.33-2.06)	F(1, 281) = 0.02, p=.89
Sum score (mean (s.e.)	3.8 (0.23)	3.9 (0.21)	b=0.06 (0.38)	4.0 (0.25)	4.8 (0.27)	b=0.78 (0.44)	F(1, 281) = 3.22, p=.07

1 The difference between the % in the Control group and the % in the Intervention group on the Pre-training Measurements on the one hand, compared to the difference between the % in the Control group and the % in the Intervention group on the Post-training Measurements on the other hand, tested by the interaction effect with the Generalized Linear Mixed Model (main effects: Group and Time), with a logit link for the dichotomous scores and an identity link for the sum score.

little room for improvement. 'Explaining MUPS with perpetuating factors' and 'giving advice to patient and GP' were reported in only 27-41% and 54-69% of the reply letters.

Our study showed that specialists write fewer reply letters concerning patients with a chronic disease and co-morbid MUPS, most of whom are under continuing specialist care, of which the GP has been notified in earlier correspondence.

Comparison with literature

We found no equivalent research on specialists' reply letters concerning MUPS patients. By broadening our scope of interest, we found research by Gol et. al. on 451 GP letters concerning patients referred to internal medicine outpatient clinics. This showed that referral letters concerning MUPS patients contained vague and non-specific information in lay terms more often than referral letters about patients whose somatic symptoms had been explained by a general medical diagnosis(17).

Strengths and limitations

A first strength of our study is the fact that the engagement of 123 doctors from various hospitals and specialties in the study enabled us to assess the effectiveness of the training in different medical settings. A further strength is that the outcomes at doctors' level were rated at the highest level of performance according to Miller, a four-level scale that discerns *knows* (level 1), *knows how* (2), *shows* (3) and *does* (4), where the *does* level refers to measurement of clinical performance in real practice(18). As most letters were written four months after the training, and as patients' questions were reported and answered more frequently by the intervention doctors, we conclude that the intervention was effective over time.

A limitation of the study is the low number of reply letters per doctor. Our finding that more than 70% of the MUPS patients had symptoms in only one cluster may be an overestimation: even though a patient could suffer from MUPS in several clusters, a medical specialist may focus mainly on symptoms within their specialty.

As we did not retrieve or study the GPs' referral letters about the included patients, we could not give reasons why 50-75% of GPs' referral questions were not reported or answered by specialists. Grol showed that GPs' referral questions were often unspecified, and led to unspecific answers(11).

Conclusion

Training increases the quality of reply letters only with regard to addressing patients' questions: medical specialists and residents report and answer patients' questions more frequently. Their explanations of MUPS with perpetuating factors remained relatively few.

Practice implications and further research and training

Specialists' reply letters need to be improved with regard to explaining MUPS with perpetuating factors and advice to patients and GPs. This would create greater consistency in the information patients received from the medical specialist and GP about their symptoms. Future training programs for medical specialists should therefore pay greater attention to rehearsing explanations and advice. Training should have a greater focus on MUPS-tailored explanatory models and expressions, that specialists could transfer into automatic generated text that helped them to report on MUPS explanations in reply letters. If referral and reply letters about MUPS patients were discussed with experts, more would be learned about ways of improving the exchange of valid information in MUPS care at the interface between primary and secondary care.

Authorship statement

All authors fulfilled the criteria for authorship and contributed to this paper.

Conflicts of interest statement

The authors indicated no potential conflict of interest.

Funding role of sponsor

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CHAPTER 6

Lessons learnt. Low patient power in a randomized controlled trial on the effectiveness of training medical specialists in communication with patients with unexplained symptoms.

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ABSTRACT

Objective

Medically unexplained physical symptoms (MUPS) burden patients in their well-being and functioning and are among the five most expensive diagnostic categories in the Netherlands. We developed a MUPS-focused training program for medical specialists which improved their communication skills. In this study we focus on the outcomes at patient level: we discuss the results and low patient power in our study on the effectiveness of this training program on patients' health and costs.

Methods

In a multi-center randomized controlled trial medical specialists and residents allocated to the intervention group received 14-hour MUPS-focused communication training. They practiced a patient-centered approach in MUPS consultations, multi-factorial symptom exploration and explanation of MUPS with perpetuating factors. Both for pre-measurement and for post-measurement each doctor was asked to include three MUPS patients. We used a compilation of validated web-based patient questionnaires to collect data on patient-related health outcomes and costs at baseline, 3-month and 6-month follow-up.

Results

A sufficient number of 123 medical specialists and residents participated in the study. They included 478 MUPS patients with informed consent; 279 patients filled out web-based questionnaires at baseline, 159 patients at 3-months follow-up and 68 patients at 6-months follow-up**.** No significant effects were found on patients' health and costs.

Conclusion

We found no significant effects of training medical specialists in MUPS communication on patients' health and costs. The power was low, most likely due to inadequate patient information, low literacy and low motivation. To enhance patient response rates we recommend the use of a patient platform to discuss methods and implementation before and during the trial.

INTRODUCTION

Many patients have bodily symptoms without underlying pathology, such as joint and muscle pain, dizziness, fatigue, stomach pain and headache. Usually these medically unexplained physical symptoms (MUPS) are self-limiting and disappear within a year(1). However, 10-30% of patients with MUPS do not improve(2). They show a high utilization of healthcare services, impaired functioning and reduced subjective health(2-5). MUPS cause high indirect societal costs due to productivity loss and are among the five most expensive diagnostic categories in the Netherlands(6-11).

Use of care and health-related outcomes can be influenced by patient-centered communication in MUPS specialist care(12). Medical specialists, however, primarily use a disease-centered approach and often experience difficulties in MUPS consultations(13). To facilitate medical specialists in patient-centered MUPS communication we developed a 14-hour training program that increased doctors' MUPS skills(14-16). In this paper we discuss the results and the low patient power in our study on the effectiveness of our training program on patients' health and costs. Reflecting on the shortcomings in our study we have learnt lessons that need to be shared.

We had the following study questions: (1) 'What is the effect of training medical specialists in MUPS-focused communication on illness worries, course of symptoms and daily functioning of their MUPS patients? (2) 'Is the MUPS-focused communication training for medical specialists cost-effective?'

METHODS

Study design

We designed a multi-center randomized controlled trial to evaluate the effectiveness of communication training for medical specialists(15). In this trial we measured patient-related health outcomes, health care utilization and costs, by web-based patient questionnaires. Medical specialists and residents from six hospitals[3] in the Netherlands were involved in this study. To participate they had to have consultation hours, in which they encountered patients with MUPS or functional somatic syndromes as well as symptoms stemming from a somatic disease that are more severe than expected based on disease parameters. The medical specialists were instructed to include new and follow-up patients if, at the end of a consultation, 'no medical explanation or just a partial medical

3 Erasmus MC University Medical Center Rotterdam, Maasstad Hospital Rotterdam, Albert Schweitzer Hospital Dordrecht, MC Haaglanden The Hague, St Antonius Hospital Nieuwegein and Diakonessenhuis Utrecht/Zeist.

explanation defined patient's symptoms'. After obtaining up to three MUPS patients, medical specialists and residents were at random allocated to the intervention or control group using a web-based randomization program, and stratified by a minimization procedure to ensure balance within each group and overall balance. Stratification factors were medical center and clinical experience (medical specialist versus resident). Doctors allocated to the intervention group were trained in MUPS communication skills, whereas doctors allocated to the control group treated patients with care as usual.

A patient information letter was provided, and patients were only included in the study after written informed consent was obtained by the research assistant. Information in the patient leaflet was limited to the description of 'symptoms that only partly or not at all could be explained by the doctor, which might raise misunderstandings between doctor and patient', and 'that the study was aimed to improve doctors' communication skills' and contained information about study procedures. Patients were asked to fill out web-based questionnaires at baseline, and after 3 and 6 months. Upon non-participation or withdrawal of informed consent, data were deleted by the research assistant. Approximately six months after randomization the training for the intervention group was completed, and the research assistants contacted all medical specialists to plan the post-measurement inclusion of MUPS patients. For post-measurements new patients were recruited who had not participated in the pre-measurements.

Intervention

The 14-hour MUPS-focused communication training program for medical specialists and residents has been described elsewhere(14). In sum, the training was organized in small groups (7 to 12 participants) and performed by two trainers, experienced in postgraduate education and MUPS, and instructed (by AW and AHB) about the training model. Medical specialists were informed about the Dutch multidisciplinary guideline for MUPS and somatoform disorders, and patient - centered communication was practiced(14).

Outcome measures: patient health and cost-effectiveness

We used a compilation of validated web-based patient questionnaires to collect data on patient-related health outcomes and costs. *Illness worries* were measured by the Whitely Index(17). *Distress, depression, anxiety and somatization* were measured by the 4DSQ(18). *Symptom severity* was measured for a maximum of three symptoms VAS (on a scale 1-10). To assess patients' *daily functioning* in terms of *physical health* and *mental health*, we used the SF-36(19). The Trimbos/iMTA questionnaire for *costs* associated with Psychiatric Illness (TiCP) was used for measuring health care utilization and costs(20). The questionnaire contained more than 140 items and was estimated to take 30-45 minutes.

Statistical analysis

We compared the pre- and post-training measurements of the intervention group versus the control group with an ANOVA with a contrast statement to check whether the difference between the pre-and post-training measurements were different in the intervention group and the control group. Non-parametric bootstrapping with resampling and 2000 replications was performed to estimate uncertainty intervals around the mean costs. Similarly mean health utility scores were bootstrapped. Data analysis and statistical testing was processed through IBM SPSS Statistics v. 22.0.

Sample size and power

In the original research protocol we had planned that 120 participating medical specialists (60 intervention and 60 control condition) were needed to evaluate the effectiveness of a training program on doctors' communication skills.

Different patients in pre- and post measurements were recruited, which meant four patient groups for analysis: (1) pre-measurement intervention group, (2) post-measurement intervention group, (3) pre-measurement control group, and (4) post-measurement control group. We estimated that a total of 440 patients (110 per group) would be necessary to measure effects on patients' health and cost-effectiveness. Assuming a 40% loss to follow-up we planned to include a total of 720 patients: 180 patients per group. Each of the 120 doctors should include three MUPS patients for pre-measurement and three MUPS patients for post-measurement.

Medical Ethics Review and Approval

The Medical Ethics Research Committee of the Erasmus MC reviewed the study design and approved the study. The Boards of the other five participating hospitals officially agreed to participate in the study, advised by local Medical Ethics Committees. The trial was registered at the Dutch Trial Registration (www.trialregister.nl NTR2612).

RESULTS

Participating doctors

Between November 2011 and April 2014 a total of 123 medical specialists and residents from eleven specialties were included in the study. Sixty-two doctors were allocated to the intervention and 61 to the control group. Twenty-five doctors dropped out of the study due to lack of consulting hours with MUPS patients during post-measurements (n=10), job switch to another hospital (n=8), withdrawal (n=4) or private circumstances (n=3). There were no statistically significant differences between intervention and control doctors on background characteristics. Figure 1 shows the CONSORT diagram.

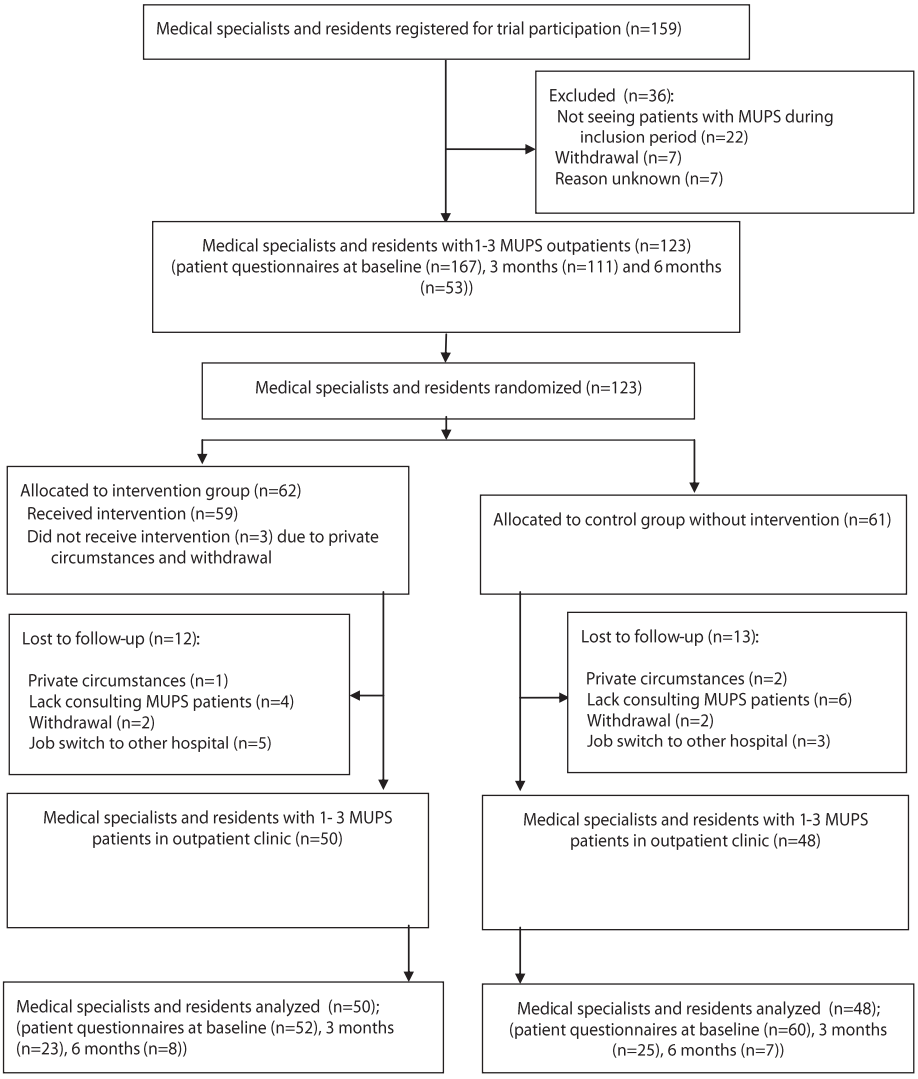

Figure 1 CONSORT 2010 Flow Diagram

Patients with filled-out questionnaires

There were 478 MUPS patients included in the study of which 279 filled out the web-based questionnaires at baseline; 159 patients answered the questionnaires at 3 months and 68 patients at 6 months follow-up. Instead of 110 patients per group for analysis, we ended up with 7-31 patients per group. Table 1 shows patients' characteristics.

Table 1 Patient characteristics

MUPS patients filling out the questionnaires (279)	Interventions (n= 135)	Controls (n= 144)
Gender		
Male	45 (33,3%)	59 (41,0%)
Female	90 (66,7%)	85 (59,0%)
Age (SD)	46.2 (16.0)	47.1 (15.7)
Specialism		
Anesthesiology	6	9
Dermatology	1	0
Gynecology	2	11
Internal Medicine	60	59
Ear, Nose and Throat Medicine	0	8
Lung Diseases	0	2
Gastroenterology	8	22
Neurology	34	16
Rheumatology	17	0
Rehabilitation Medicine	3	12
Hospital		
Albert Schweitzer Hospital Dordrecht	6	6
Diakonessenhuis Utrecht	28	24
Erasmus MC University Medical Center Rotterdam	23	42
Maasstad Hospital Rotterdam	2	2
MC Haaglanden The Hague	21	22
St Antonius Hospital Nieuwegein	25	18
Education		
Primary education	2 (1.6%)	9 (6.8%)
Secondary education	74 (58.3%)	81 (61.4%)
Tertiary education	35 (27.6%)	35 (26.5%)
Other	16 (12.6%)	7 (5.3%)
Civil Status		
Single	32 (25.6%)	39 (29.5%)
Married/Longterm cohabitation	83 (66.4%)	80 (60.6%)
Divorced	2 (1.6%)	7 (5.3%)
Widow(er)	8 (6.4%)	6 (4.5%)
Employment		
Paid job	56 (45.2%)	63 (47.0%)
Housekeeping	16 (12.9%)	8 (6.0%)
Retired	14 (11.3%)	21 (15.7%)
Student	12 (9.7%)	7 (5.2%)
No paid job due to health problems	19 (15.3%)	22 (16.4%)
No paid job due to other reasons	7 (5.6%)	13 (9.7%)

Patient health

Table 2 presents the results on patient health. We didn't find any significant differences in patients' health between the pre-and post-training measurements in the intervention group and the control group. Patients' physical and mental health was low, mean 43.4 and 44.9.

Table 2 Results on patient health

	IG Pre-training	IG Post-training	CG Pre-training	CG Post-training
Health Anxiety (WI) *14: no worries* *15-32: few worries* *32-55 :many worries*				
Baseline	19.2 *(2.8)*, n=83	19.8 *(3.0)*, n=52	19.3 *(3.6)*, n=84	18.7 *(3.0)*, n=60
3 months	18.9 *(3.0)*, n=56	18.6 *(3.6)*, n=23	18.9 *(3.5)*, n=55	17.9 *(2.3)*, n=25
6 months	19.2 *(3.4)*, n=31	19.8 *(3.1)*, n=8	18.4 *(3.2)*, n=22	18.4 *(4.8)*, n=7
Symptom severity (VAS) 1-4 low, 5-7 moderate, 8-10 high				
Baseline	7.5 *(1.4)*, n=76	7.7 *(1.5)*, n=47	7.7 *(1.8)*, n=73	7.4 *(1.7)*, n=59
3 months	7.1 *(1.7)*, n=49	6.8 *(1.7)*, n=22	7.0 *(2.6)*, n=49	6.9 *(1.4)*, n=24
6 months	7.2 *(1.7)*, n=28	5.6 *(2.6)*, n= 8	6.5 *(2.5)*, n=20	8.0 *(1.1)*, n= 6
Distress (4DSQ) *0-10 low* *11-20 moderate* *21-32 high*				
Baseline	12.5 *(8.5)*, n=80	13.8 *(7.6)*, n=51	11.8 *(8.7)*, n=81	11.1 (8.4), n=57
3 months	10.2 *(8.5)*, n=53	10.3 *(9.1)*, n=21	11.3 *(9.2)*, n=53	9.0 *(7.7)*, n=22
6 months	12.0 *(10.2)*, n=31	6.7 *(7.3)*, n=7	8.1 *(8.0)*, n=22	8.2 *(11.4)*, n= 6
Depression (4DSQ) *0-2 not depressed,* *3-5 possibly depressed,* *6-12, depressed*				
Baseline	2.1 *(3.3)*, n=83	1.9 *(2.8)*, n=50	2.2 *(3.1)*, n=83	1.7 *(3.2)*, n=60
3 months	1.6 *(2.9)*, n=55	1.7 *(3.1)*, n=22	2.1 *(3.2)*, n=55	1.3 *(2.7)*, n=24
6 months	2.7 *(3.8)*, n=30	1.3 *(1.8)*, n=8	1.2 *(2.9)*, n=22	1.4 *(3.4)*, n=7
Anxiety (4DSQ) *0-7, not applicable* *8-12 possibly Anxiety Disorder* *13-24 Anxiety Disorder*				
Baseline	3.6 *(4.9)*, n=84	3.9 *(5.0)*, n=51	3.4 *(5.3)*, n=82	3.0 *(5.0)*, n=58
3 months	2.9 *(5.1)*, n=55	2.3 *(4.0)*, n=23	3.2 *(4.6)*, n=53	2.3 *(4.1)*, n=25
6 months	3.6 *(5.8)*, n=31	4.3 *(5.2)*, n=8	1.6 *(2.7)*, n=22	1.2 *(1.3)*, n=6

Table 2 Results on patient health (continued)

	IG Pre-training	IG Post-training	CG Pre-training	CG Post-training
Somatisation (4DSQ) 0-10 not applicable 11-20 possibly somatizing 21-32 somatizing				
Baseline	12.2 *(12.2)*, n=84	12.3 *(7.6)*, n=50	12.2 *(7.3)*, n=80	11.0 *(6.0)*, n=54
3 months	11.4 *(7.6)*, n=51	11.0 *(6.8)*, n=20	10.6 *(6.6)*, n=51	10.1 *(7.6)*, n=21
6 months	9.6 *(6.7)*, n=29	7.0 *(5.1)*, n=6	9.7 *(6.8)*, n=20	13.5 *(7.3)*, n=6
Physical health (SF36) Scale 0-100, (0 lowest health, 100 highest health)				
Baseline	42.9 *(7.4)*, n=81	43.3 *(8.8)*, n=51	43.8 *(7.7)*, n=81	43.7 *(8.1)*, n=59
3 months	42,4 *(8.5)*, n=55	44.7 *(7.7)*, n=23	44.5 *(6,5)*, n=54	45.2 *(7,5)*, n=25
6 months	42.7 *(8.5)*, n=30	44.6 *(8.4)*, n=8	45.9 *(7.1)*, n=22	43.0 *(9.2)*, n=7
Mental health (SF36) Scale 0-100, (0 lowest health, 100 highest health)				
Baseline	39.1 *(7.7)*, n=81	37.7 (*7.6*), n=51	39.9 *(8.4)*, n=81	39.3 *(8.3)*, n=59
3 months	41.1 *(7.5)*, n=55	40.3 *(9.0)*, n=23	40.6 *(7.7)*, n=54	41.3 *(5.8)*, n=25
6 months	40.0 *(8.4)*, n=30	43.6 *(8.0)*, n=8	41.8 *(8.8.)*,n=22	39.6 *(4.6)*, n=7

MUPS patients analyzed (n=279); Intervention group = IG, Control group = CG; No significant effects (p<.05) were found.

Cost-effectiveness

For cost-effectiveness analysis a substantial amount of patients in the intervention group is necessary(21). Table 3 presents the decline of patient response at baseline and follow-up. Given the wide confidence intervals, low power and short observational period, we chose not to publish unreliable and invalid outcomes on the cost-effectiveness of the training program.

DISCUSSION

Main findings

We found no significant effects on patients' health and costs probably due to low power. This finding, however, is not robust since the power was very low. Therefore we are not able to report effects of the specialists' MUPS-focused training program on patients' health and costs. Despite frequent reminder mails and telephone calls to motivate patients, we had higher patient drop-out than expected.

Table 3 Decline of patient response

Total number of included patients, n=478	Patients with filled out questionnaires at baseline, n=279	Patients with filled out questionnaires at 3-months follow-up, n=159	Patients with filled out questionnaires at 6-months follow-up, n=68
pre-measurements intervention group	83	56	22
post-measurements intervention group	52	23	8
pre-measurements control group	84	55	31
post-measurements control group	60	25	7

Comparison with literature

Morriss et al. showed that the cost-effectiveness of training GPs in the reattribution model aimed at treating patients with somatized mental disorders was highly cost-effective(22). Patients' psychiatric symptoms improved and their number of GP visits reduced. Blankenstein et al. studied the effects of a MUPS-focused communication training for general practitioners and found improvement in patients' subjective health and a decrease in GP visits(23). Rief et al. found that a one-day MUPS-focused training program for GPs reduced the number of GP visits, but yielded no effects on health outcomes(24). Later studies on training practices in primary care for patients with MUPS showed variable results on patients' health and health contacts(25-26).

Strengths and limitations

To our knowledge this is the first evaluation of a MUPS-focused training program for medical specialists on patients' health and costs. Due to low power the value of this study is limited to lessons learnt from our failure to recruit and retain sufficient numbers of patients. Reflecting on what may have contributed to low patient response in our study we see the following factors:

(1) Patients' expectations didn't match the information, they may have understood from the research assistant or medical specialist about the study aim 'learning specialists better to communicate with patients when they had symptoms that were difficult to define'. Many medical specialists emphasized that they themselves were the study objective, not the patient. To avoid bias the patient information leaflet contained no information about the effects of patient-centered communication on patients' health outcomes and use of care. Therefore patients may have been hesitating to answer questions about depression, work or income, which were asked to establish productivity loss and calculate costs. Some patients may even have been offended by questions about personal anxieties and mental health while having physical

symptoms, a common problem in MUPS research. Eleven patients (4%) explicitly raised questions about these subjects.

(2) Eleven other patients (4%) noted that answering the questionnaire was too tiring to be accomplished more than once. Answering the more than 140-items questionnaire three times may have been too time-consuming and burdensome to patients(10, 27-28). It appeared that patients in our study even had a lower physical (mean 43.4) and mental health (mean 44.9) than patients with unexplained physical symptoms recently studied by Zonneveld et al. (respectively 50.9 and 62.7), which may have reinforced the non-response(10).

(3) Language difficulties and low literacy appeared to be another barrier to fill out the questionnaires. In the beginning patients who were willing to be videotaped, but felt not able to fill out questionnaires were excluded from the study. In order to reach sufficient numbers of patients and prevent bias we decided to include these patients and they did not receive questionnaires (n=23).

(4) A few patients asked medical questions or shared their despair when describing their symptoms' severity. Remarks and questions raised by the patients in their questionnaires were not instantly retrieved for answering by the research team. Not or delayed responding to their needs may have led to non-response at follow-up.

(5) Insufficient data quantity and data quality in patient reported outcomes led to exclusion of a considerable number of patients from analysis.

The most important lesson learnt is that we should have given patients the opportunity to comment on our planned methods of data collection. If we would have asked patients to participate at the development of the study, they probably would have identified problems and proposed more attractive options. This would have led to adjustments in the questionnaire, the patient information letter and feedback to patients. We could for instance have used more various strategies to collect patients' responses on our questionnaires (like telephone interviews or focus groups).

Conclusion and lessons learnt

We found no significant effects of training medical specialists in MUPS communication on patients' health and costs, most likely caused by low power due to inadequate patient information, low literacy and low motivation. To increase power the use of a patient platform to discuss study methods and implementation at beforehand is recommended.

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CHAPTER 7

GENERAL DISCUSSION

AIM OF THE STUDY

This study aimed to provide effective communication strategies for medical specialists in their consultations with patients with Medically Unexplained Physical Symptoms (MUPS). For this aim we developed a MUPS-focused training program and evaluated its effectiveness.

We started our research with the following research questions (Q):

(Q1) 'Which elements of MUPS-focused doctor-patient communication in somatic specialist care influence patients' symptoms, health anxiety, satisfaction, daily functioning and use of health care'?

(Q2) 'Which unmet needs do medical specialists have in their encounters with MUPS patients'?

(Q3) 'Which evidence-based training facilitates medical specialists in MUPS consultations'?

(Q4) 'Does MUPS-focused communication training facilitate medical specialists to use more often effective communication in MUPS consultations compared to non-trained medical specialists'?

(Q5) 'What is the effect of training medical specialists in MUPS-focused communication skills on patients' illness worries, course of symptoms and daily functioning in comparison with non-trained specialists'?

(Q6) 'Is this MUPS-focused communication skills training for medical specialists cost- effective'?

MAIN FINDINGS

Communication matters in MUPS specialist care

(Q1) We performed a systematic review of the literature to find which elements of doctor- patient communication in somatic specialist care influence symptoms, health anxiety, satisfaction, daily functioning and use of health care in patients with MUPS. We found that the following basic elements of specialist communication had a positive effect on MUPS patient's health and use of care:

- Perceiving patients' expectations correctly(1).
- Explaining patients the nature of MUPS with an additional information leaflet(2).
- Providing patients with information about normal test results prior to investigation(3).
- Interacting positively with patients and giving patients positive feedback (4-8).

Creating a feasible MUPS-focused communication training

(Q2) In a pilot-training we assessed the needs of medical specialists encountering MUPS patients. We summarized their needs into the following goals: knowledge about MUPS (aetiology, treatment, referral options) and practical communication skills such as biopsychosocial exploration, adjusting information in the patients' perspective, reassuring patients effectively and explaining the nature of MUPS.

(Q3) We used the Intervention Mapping framework to systematically apply training methods (Structured Learning Technique, Cumulative Micro Training and Cognitive Behavior Techniques), MUPS guidelines and results from the needs assessment into the development of evidence-based MUPS-focused communication training for medical specialists(9-11). The result was an active and practice-oriented, 14-hour communication training divided into four sessions with intervals of at least one month(12). Biopsychosocial symptom exploration was practiced and medical specialists were taught to explain MUPS understandably, reflected in a clear reply letter to the referring general practitioner (GP).

Medical specialists reported to profit from the training and they experienced more satisfaction in their medical encounters with MUPS patients. Specialists and residents evaluated the communication training as very useful for their clinical, everyday practice.

Training specialists to communicate better with MUPS patients

(Q4) We evaluated the effectiveness of the MUPS-focused communication training program for medical specialists in a multi-center randomized, controlled trial (RCT). Observations of videotaped MUPS consultations showed that trained medical specialists and residents applied biopsychosocial symptom exploration more frequently than the untrained medical specialists and residents. Trained medical specialists and residents summarized information in a more patient-centered way and explained patients more frequently about interrelating factors and MUPS than the untrained specialists and residents. It appeared that trained doctors explored and informed MUPS patients with a non-western ethnic background less effectively than patients with a Dutch background and that they also used the MUPS exploration skills more frequently in consultations with female patients than in consultations with male MUPS patients.

Training specialists to write appropriate reply letters to general practice

(Q4) In the same RCT we assessed the effectiveness of the MUPS-focused training program on the quality of specialists' reply letters about MUPS patients to

referring general practitioners (GPs). While trained medical specialists and residents reported and answered patients' questions more in their reply letters to GPs than untrained doctors did, the only effect of our training involved the improved frequency with which patients' questions were addressed in reply letters. We identified and analyzed reply letters for 60% of all videotaped consultations. Almost all reply letters contained information on somatic findings and additional diagnostic testing.

Patient outcomes and costs

(Q5) We evaluated the effectiveness of the MUPS-focused training program on patient outcomes in the same RCT by web-based patient questionnaires on health anxiety, symptoms, distress, depression, anxiety, and somatization, physical and mental health. In total there were 279 patients, who filled out patient questionnaires; 167 MUPS patients answered the baseline questionnaires at pre measurements, of which 111 patients answered the 3-months follow-up and 53 patients the 6-months follow-up questionnaires. For the post measurements new patients were recruited; 112 patients answered the baseline questionnaires, of which 48 at 3-months follow-up and only 15 patients at 6-months follow-up. We found no effects of the training on patients' health.

(Q6) We evaluated the cost-effectiveness by web-based patient questionnaires, data from the research team and data from the CBS. The low power at patient level and increased drop-out of patients' response at follow-up caused severe limitations in the performance of the costs-utility analysis. We found no effects.

STRENGTHS AND LIMITATIONS

Originality and clinical relevance

Our systematic review of the literature on doctor-patient MUPS-focused communication in specialist care was to our knowledge the first on this subject. The limited findings in the literature combined with the high prevalence of MUPS in outpatient clinics and the difficulties medical specialists, such as neurologists, gastroenterologists and internists, experience in MUPS consultations, suggest that MUPS-focused communication has a low priority in somatic specialist care. It emphasized the necessity of our study, searching for effective communication strategies that could facilitate medical specialists in consultations with MUPS patients. We found a few basic elements essential for MUPS communication, but no postgraduate curriculum or training model tailored to specialist care aimed to improve health outcomes of MUPS patients or reduce use of care.

Our MUPS-focused training program for medical specialists is to our knowledge the first in its kind. The positive evaluation by attendees showed the relevance of our training for clinical practice in outpatient clinics in hospitals. Due to the presentation of their own case material during the training, medical specialists achieved greater awareness of the prevalence of MUPS throughout the different specialties. In some cases they noted an extremely high use of secondary care (some patients had visited the Emergency Department and other specialties up to 20 times in the previous three months), motivating them to more multidisciplinary cooperation and an increased use of MUPS communication skills.

Our study on the quality of specialists' MUPS reply letters to the GP is also the first to our knowledge. Peer-review and discussion about the content of MUPS reply letters increased the reporting and answering of patients' questions in specialists' reply letters to the referring GPs. However, we found no improvement on explaining MUPS with perpetuating factors in these letters.

Despite improved clinical performance of medical specialists and residents trained in MUPS communication, we didn't find effects on patients' health outcomes and costs. We may have overestimated the effect of a MUPS focused-training in specialist care on these outcomes.

Design of the training

Besides the originality and clinical relevance of the study, the educational design of the training program is a third factor contributing to the strength of the study. Its content was derived from the training course for Dutch general practitioners. It has been adjusted after a pilot-training to the practice of medical specialists. The insights from our systematic literature review were combined with essential knowledge from MUPS guidelines, patients' experiences and effective training strategies for teaching communication skills to physicians(12-15). With the Intervention Mapping approach we systematically developed a feasible, novel and evidence-based MUPS communication training program in specialist care. The use of classic training methods (the Structured Learning Technique, the Cumulative Micro Training Method and Cognitive Behavioral Techniques) were successful in learning and transferring MUPS communication skills to the clinical workplace(16). Participants were encouraged to assess their MUPS communication skills by individually watching their own videotaped consultations and rehearse those skills who they perceived to be weak. Writing personalized intentions at the end of the training program reinforced the implementation of newly learned MUPS skills in specialist practice. Medical specialists were coached to assist future training programs in their hospital and share their expertise with colleagues and residents.

Generalizability of the results

We performed the training in six hospitals with doctors from eleven specialties, which enabled us to assess the training model in different medical settings. The training was attended by a variety of medical specialists and residents and evaluated as very useful for daily practice by participants from all eleven specialties. We consider this as a fourth strength of our study. However, the numbers per specialty were too small to analyze differences between specialties. Furthermore not all specialties were involved in the study. Paediatricians were not apparent in our study because patients under the age of 18 years were not included. Emergency Medicine specialists, radiologists, pathologists did not participate in our study because of lack of outpatient consultation hours. We aimed our training program on medical specialists, who lack postgraduate MUPS focused education, and therefore psychiatrists were absent in our study. However, we failed to include surgeons, urologists and ophthalmologists in the study, while there were no objective hindrances for participation.

Diversity

One of our findings was that medical specialists who had attended the training used more often MUPS interviewing and information-giving skills than those who had not taken the training. However, in consultations with MUPS patients from different ethnic backgrounds, medical specialists were hampered by the lack of three prerequisites: time, professional interpreters and knowledge of cultural diversity. Despite the value of the MUPS communication skills for daily practices, medical specialists experienced consultations with MUPS patients from different ethnic backgrounds as extremely difficult. It appeared that trained doctors explored and informed MUPS patients with a non-western ethnic background less effectively than patients with a Dutch background.

We did not include intercultural dimensions of MUPS-focused doctor-patient communication in our training program, although it has been recognized in earlier literature as a potential source of misunderstanding, which may reduce the quality of health care(17-18). Challenges in MUPS intercultural doctor-patient communication apart from the above mentioned prerequisites are differences in perspectives, values, and beliefs about illness between doctors and patients(19). In cities like Rotterdam with 178 nationalities and large populations originating from Surinam, Morocco, Turkey and the Antilles, skilful intercultural communication is required in hospital practice. Symptom exploration with the SCEBS-analysis, raising issues of health beliefs and illness perceptions, could provide doctors with a method to inquire the social and behavioral aspects of MUPS in consultations with patients from different ethnic backgrounds(20).

Most MUPS are reported by women and some MUPS are almost exclusively female dominated(15, 21-22). This may explain why we found that trained medical specialists used MUPS communication skills more frequently in medical encounters with female

patients. Furthermore women usually add more context to their symptoms, which makes a bio-psychosocial approach in MUPS consultations easier. However, strengthening gender-based medical education and practice could reinforce a more optimal use of MUPS communication skills for both men and women(23-24).

METHODOLOGICAL CONSIDERATIONS

Original data and instruments

We used data, collected in real practice. We videotaped consultations with real MUPS patients by an unmanned camera and measured specialists' application of newly learned communication skills in daily practice according Miller's pyramid of clinical performance(25). This model discerns four levels of evaluation and each level builds upon the knowledge and expertise of the previous level. The first level only measures *knows,* the second level *knows how,* the third level *shows doctor's skills in training situations* and the fourth and highest level measures *does the doctor practice the skills in real consultations.* We measured specialists' communication skills at this fourth level by assessing videotaped consultations with real medical encounters, which adds to the strength of our research(26).

We based our assessments of the videotaped consultations on a validated instrument adjusted to MUPS and used validated patient questionnaires(27-31). The reply letters we retrieved were referring to the videotaped consultations. The instrument to assess the quality of specialists' reply letters was created by the project team in cooperation with trainers and assessors. For the evaluation of the training we used self-reported questionnaires by participants. We considered the quality of our instruments moderate to high: they were validated and modified or created if necessary to measure our study outcomes.

Statistical power for outcomes on doctor level

In the original research protocol we planned to include 120 medical specialists and residents from one hospital in a period of two years. That was far too optimistic. Before the start of the study we estimated a 10% drop-out of doctors, which in reality proved to be 20%. We succeeded to reach sufficient numbers of doctors by switching almost immediately from a single center study into a multi-center study and an extension of the study period. With six participating hospitals, divided over 12 locations, we included 123 doctors and were able to gain sufficient statistical power for outcomes on doctors' level. To measure specialists' MUPS communication skills we assessed 449 videotaped MUPS consultations and 285 MUPS reply letters. However, the intended three MUPS consultations per doctor before and after intervention were not always achieved, due to

patients' withdrawal of informed consent, patients' refusal to be videotaped or doctors having limited MUPS consultations at the outpatient clinics. With 449 MUPS videotaped consultations and 285 reply letters to the GP for analysis we proved the effectiveness of the training program on specialists' MUPS communication skills.

Statistical power for outcomes on patient level

In the original research protocol we planned that the participating medical specialists and residents were able to include 720 MUPS patients during the study (six patients per doctor). Before the start of the study we estimated a 20% drop-out of patients, resulting in a total of 516 patients for analysis. Patients were asked to fill out web-based questionnaires on health, functioning, use of care and costs at baseline and follow-up at 3-months and 6-months. Due to a study design with inclusion of different patients in pre- and post measurements, we had four groups of different patients in our study: (1) pre-measurements of the intervention group, (2) post-measurements of the intervention group, (3) pre-measurements of the control group, and (4) post-measurements of the control group. We estimated to analyze 129 patients per group.

The medical specialists included in total 478 MUPS patients, which were 33% less patients than estimated at the start of the research; 279 patients filled out the baseline questionnaires. In reality there was a far larger percentage of patients' drop-out than expected, despite frequent reminder mails and telephone calls to the participating patients by the research assistants. To demonstrate the seize of patients' drop-out, we present the exact numbers of patients that filled out the questionnaires at respectively baseline, 3-months follow-up and 6-months follow-up for all the four groups separately (Table 1).

Patients' drop-out rates at baseline were 42%, at 3-months follow-up 25% and at 6-months follow-up 19% of the total number of included patients. Only 68 out of 478 included patients (14,2%) remained in the study until the 6-month follow-up.

Table 1 Patient response on questionnaires

Total number of included patients, n=478	Patients with filled out questionnaires at baseline, n=279	Patients with filled out questionnaires at 3-months follow-up, n=159	Patients with filled out questionnaires at 6-months follow-up, n=68
pre-measurements intervention group	83	56	22
post-measurements intervention group	52	23	8
pre-measurements control group	84	55	31
post-measurements control group	60	25	7

Patients were motivated to participate in the study when they were asked for informed consent by the research assistant. They were told that this study would help medical specialists to communicate better with patients when they had symptoms that were difficult to define. Many patients were willing to contribute to this aim. Information in the patient leaflet was limited to the description of 'symptoms that only partly or not at all could be explained by the doctor, causing easily misunderstandings between doctor and patient', and 'that the study was aimed to improve doctors' communication skills' and contained information about study procedures. There were about 140 questions patients had to answer by the internet. Patients sometimes didn't understand the relevance of questions related to income, work or depression. Some of them wondered what these questions had to do with the aim of the study. Others didn't understand why questions about their personal anxieties and mental health were asked, given the fact that they had physical symptoms.

Patients' expectations didn't match the information, they understood from the research assistant and medical specialist for a few reasons. First of all language difficulties and low literacy appeared to be a barrier to fill out the questionnaires. Secondly, to avoid bias there was no explanation in the patient information leaflet about the effects of training medical specialists to communicate better on patients reported health outcomes such as symptoms, functioning, mental health, health anxiety and use of care. Thirdly, many medical specialists emphasized in the beginning of the videotaped consultation that they themselves were the study objective, not the patient.

We could have anticipated on the risk of low patient response by calculating a much higher power and budget. We also could have used more various strategies to collect patients' responses on our questionnaires (like telephone interviews or home visits) or shortened the follow-up questionnaires or reward patients for participation. But how realistic would these conditions have been?

The primary outcome of the randomized controlled trial as defined in the trial registry (www.trialregister.nl, NTR2612) was improvement of patients' health. The secondary outcomes were defined as improvement of doctors' communication skills and an economic evaluation of the training program. The low power on patient level restrained us from answering our primary study question and the secondary question on cost-effectiveness. Ultimately, this is a weakness in the study, which we highly regret.

Quality of the assessments

The MUPS communication skills of medical specialists and residents were assessed by observation of 449 videotaped consultations by three psychologists. To obtain adequate inter-rater reliability 50 videotaped consultations were rated by all raters, differences in rating were discussed and the appointments for rating sharpened; 120 tapes were rated in couples of two raters to measure inter-rater reliability scores. The quality of the assess-

ment was monitored in eleven workshops during the study. We obtained an inter-rater reliability of 0.78, which is substantial.

The quality of 285 specialists' reply letters was assessed by six doctors, one of them was considered to be the gold standard for the right scores. To obtain adequate inter-rater reliability the first 10 reply letters were rated by all, differences in rating were discussed and rating procedures sharpened. To measure inter-rater reliability another 14 reply letters were assessed in four different rounds by all six raters. After every round feedback was provided. We obtained sufficient inter-rater reliability (Kappa 0.6 and Phi 0.6).

We additionally asked the raters of the specialists' reply letters to classify patients' symptoms, as mentioned in the reply letter. We found that more than 70% of the MUPS patients had symptoms in one cluster. However, this number could also be caused by the fact that medical specialists tend to only address symptoms within their specialty, although the patient could suffer from MUPS in multiple clusters. We didn't retrieve and didn't study the GPs' referral letters about the included patients. We therefore couldn't give reasons why 50-75% of GPs' referral questions were not mentioned nor answered by medical specialists. Based on the literature we suggested that the majority of the referral questions were too unspecified to provide with a focused answer.

IMPLICATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Comparison of our training program for medical specialists with GPs' training programs

Our training for medical specialists was built on the knowledge and expertise gathered in MUPS-focused education in general practice(13, 32-33). Compared to the 16-hour Dutch training program for GPs our training model was shorter, concentrated on the importance of structure, a patient-centered and multi-factorial approach in exploring and explaining MUPS, avoiding unnecessary interventions and an informative reply letter. Techniques such as 'symptom diary', 'reattribution in three steps', 'challenging catastrophying thoughts', 'negotiating a final test and discussing patients' health anxiety' were perceived as not applicable in the regular work-up of outpatient clinics by participants in the pilot-training. Blankenstein et al. found, comparable to our results, that trained GPs were able to apply cognitive-behavioral techniques to MUPS patients during normal consultation hours. Furthermore they found that patients' subjective health was increased at 2-year follow-up, and that use of health care and sick-leave were decreased(34) . A recent Cochrane review on enhanced care in general practice showed that only more intensive interventions showed effects on physical health, while no effects were found on mental health, and effects on utilization of health care were inconclusive. The Cochrane review on non-pharmacological interventions for somato-

form disorders and MUPS in adults showed that both Cognitive Behavioral Therapy (CBT) and structured, long-term enhanced care by their doctor reduced the severity of symptoms(35-36).

Aiarzaguena et al. showed that GPs benefit from a 20-hour MUPS-focused communication training program for two reasons that medical specialists also favoured in our training program(37-38). First they welcomed the structure, which facilitated a more comfortable relationship with MUPS patients, and secondly they experienced that the skills were transferable to a broader spectrum of patients with psychosocial problems. Fink and Rosendal et al. studied the effectiveness of a 25-hour educational model for assessing and treating MUPS patients in general practice(39-40). The training changed GPs' attitude towards MUPS patients, GPs became more confident and less frustrated in encounters with MUPS patients. We didn't measure change of specialists' attitude towards MUPS patients, but some of those who attended the training program reported less frustration during MUPS consultations as a result of the obtained practical communication tools. Rief et al. designed a one-day workshop for GPs on managing MUPS patients aimed at communication, treatment options, and when to start and stop medical examinations. They concluded that GPs valued the training for everyday practice and that there were no effects on patient outcomes(41).

Given the variance in study designs, training models and results of the different MUPS training programs, an exchange of best practices and discussion of study protocols aimed to improve patient related health outcomes and reduce ineffective use of healthcare services could add to the body of knowledge(42).

Quality of referral and reply letters

There is very limited research yet on the quality of MUPS referral and reply letters. Our study shows there is a gap in the exchange of valid information about MUPS patients in MUPS care at the interface between primary and secondary care. Discussing referral and reply letters about MUPS patients with experts could increase that knowledge. Specialists' reply letters need to be improved with regard to explaining MUPS with perpetuating factors and advice to patients and GPs. This would create greater consistency in the information patients received from the medical specialist and GP about their symptoms.

We consider studying the referral letters of the included MUPS patients in our database. This could answer the question why so many referral questions are not addressed in specialists' reply letters.

MUPS in the Emergency Departments

Our study raised awareness among medical specialists who attended the training program, that some of their MUPS patients appear to frequently visit the Emergency Departments (EDs). Identifying these patients could help to address their needs and

to provide medical specialists working in EDs with practical tools to recognize MUPS patients, avoid unnecessary medical interventions and share valid information with patients and their general practitioners(43-44).

Diversity

To distinguish which elements of intercultural doctor-patient communication in MUPS consultations in specialist care work as a barrier or as a facilitator needs further consideration(19). The recent MUPS guideline for Dutch general practitioners recommends that symptom exploration in MUPS consultations with patients from a different ethnic background starts by raising questions about the impact of symptoms on family and activities(20). Furthermore the guideline suggests the use of metaphors and images to make MUPS explanations easier understood by patients from different cultures and levels of literacy. Qualitative research in hospitals with focus groups of medical specialists and MUPS patients could explore solutions and best practices in MUPS-specific doctor-patient communication. In a pilot-training the implementation of these insights could be evaluated.

Special Interest Group on MUPS research & education

An international cooperation aimed at prevention and treatment of MUPS and MUPS-focused doctor-patient communication could stimulate the development of MUPS research and promote the implementation of effective MUPS-focused communication strategies and training programs. A Special Interest Group (SIG) on MUPS will be proposed within the scientific communities of the American and European Associations for Communication in Healthcare.

IMPLICATIONS AND RECOMMENDATIONS FOR POSTGRADUATE EDUCATION

Embedding training in postgraduate education

The training has been registered with accreditation in the continuing medical education for medical specialists. We recommend that the training be embedded in the postgraduate training for residents, frequently encountering patients with unexplained physical symptoms. Hospitals and/or individual medical specialists and residents can apply for the training through the Erasmus MC, www.erasmusmc.nl/onverklaarde-klachten, or through the Academy of Medical Specialists. A training manual in English will be developed.

Upgrading the MUPS-focused training program for specialists

Although the training was evaluated positively by participants on the aspects of content, structure (four sessions), duration (14-hour) and feedback, it appeared that many doctors had difficulties attending all four sessions due to work obligations or private circumstances. In our study missed sessions could be attended in one of the other training courses or replaced by additional homework combined with individual feedback by trainers or peers. With the current knowledge and state of the art of E-learning our training model could facilitate individual learning in private time(45-46). Such a blended training could reduce face-to-face education and make the training less costly for medical specialists to attend due to reduced productivity loss(47). A blended MUPS training could lower the threshold for participation and facilitate its implementation in hospital practice.

In the training program medical specialists are encouraged to write their favourite explanations down into prescribed text, easily accessible when composing electronic MUPS reply letters to the referring GP. Given the low quality of the reply letters with regard to the explanation of MUPS to the patient, future training programs for medical specialists should therefore pay greater attention to rehearsing explanations and advice.

Another aspect that deserves more attention in the training program is practicing communication with MUPS patients from ethnic minority groups. The recommendations from the MUPS guideline concerning exploring and informing could be practiced. With the outcomes of further research on this topic the training program could be adjusted, if applicable.

And last but not least when participants would be more challenged to practice MUPS skills with male MUPS patients, this could contribute to a more effective and balanced MUPS care.

CONCLUDING REMARKS

With this thesis we have made a contribution to the knowledge of doctor-patient communication in everyday practice consultations with MUPS patients in somatic specialist care. Through our studies we have designed an effective communication training for medical specialists and residents encountering MUPS patients and improved the exchange of valid information from specialist care to general practice. Our study contributes to a better understanding of MUPS patients and provides medical specialists and residents with optimal knowledge, skills and confidence in their encounters with patients suffering from physical symptoms with an unknown aetiology.

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CHAPTER 8

SUMMARY

BACKGROUND

In secondary care about 50% of newly referred patients to outpatient clinics of Neurology, Gynecology, Rheumatology or Internal Medicine present medically unexplained physical symptoms (MUPS). Medical specialists consider patients with invalidating symptoms without underlying pathology much more difficult to deal with than patients with symptoms that are medically explained. The problem here is that they primarily use a disease-centered approach in their consultations with MUPS patients. They don't want to miss a serious, rare disease and therefore are easily triggered to do more physical examinations than medical guidelines suggest, refer patients to other specialists within their hospital or might lack specific knowledge to distinguish MUPS. They sometimes don't understand patients' expectations and face patients, who are not willing to accept their findings and definition of MUPS. Moreover, medical specialists feel less competent in their consultations with MUPS patients compared to patients with explained symptoms.

MUPS patients in specialist care feel anxious and unsatisfied when expectations are not met. Contest between patients' expertise, resting on their knowledge of their symptoms and doctors' authority, based on the normal findings of tests and investigations often contribute to problems in MUPS-consultations. Specialists need to find an explanation for patients' symptoms that is acceptable to both parties from available medical and lay material. Since there are various MUPS definitions and approaches patients easily get confused by different and sometimes inconsistent messages from doctors. Finding sensible, common ground in the explanation of the symptoms, shared by doctor and patient, is very much indicated as a preferred strategy to overcome these problems. The amount of clinician training to understand, evaluate and manage MUPS is disproportionally small relative to their prevalence, impairment and costs.

MUPS are always multi-factorial. There are somatic, physiological, cognitive, emotional and psychosocial aspects involved that trigger and reinforce patients' symptoms. Discovering how these interconnecting aspects influence patients' symptoms requires personalized medicine and a patient-centered approach, which could be practiced in postgraduate education. Our research hypothesis was that providing medical specialists with MUPS-focused knowledge and communication skills could make them more comfortable and effective in their consultations, which could improve patients' health and reduce health care costs. In **chapter 1** the relevance of this study and the specific research questions are described.

METHODS AND RESULTS

We started our research by reviewing the literature in **chapter 2**. What is known about effective physician-patient communication in MUPS specialist care? Are there MUPS-focused communication strategies for specialists available? We determined symptoms, health anxiety, satisfaction, daily functioning and use of health care as health outcomes of doctor-patient communication in specialist MUPS care. We performed a systematic search in PubMed, PsycINFO and Embase. The combined search resulted in 1981 articles. After screening and reviewing these articles eight studies were included. Two studies described the effect of communication on patient outcomes in physical symptoms, three studies on health anxiety and patient satisfaction and one study on daily functioning. Two studies contained research on use of health care. Qualitative synthesis of findings was conducted.

We found that research on MUPS-focused communication in medical specialist care was limited and elicited the following aspects of communication influencing patient outcomes and use of care positively:

1. Perceiving patients' expectations correctly.
2. Explaining the nature of MUPS with additional information.
3. Providing patients with information about normal test results prior to investigation.
4. Positive doctor-patient interaction and positive feedback from the doctor.

In **chapter 3** we described the stepwise development of an evidence-based training program for medical specialists to provide medical specialists with optimal communication tools in MUPS consultations. We used the Intervention Mapping (IM) framework to systematically apply theories, empirical evidence and practice perspectives in the development of this training model.

IM is a process in six steps. In the first step we accomplished a needs assessment, including literature study and a pilot training program. The second step contained the description of the intervention objectives. In the third step we selected educational methods and techniques to match the intervention objectives. Then, in the fourth step we elaborated the intervention content, which is the MUPS-focused communication skills training program for medical specialists. In the fifth step we formulated the implementation plan. In the sixth and final step we wrote a research protocol for a randomized controlled trial to evaluate the effectiveness and efficiency of the intervention.

With the IM approach we developed an evidence-based, 14-hour communication training for medical specialists and residents. The training was organized in small groups (12 doctors) and performed by one trainer and one assistant trainer. In short, the training methods consisted of experiential learning, role-play and feedback. Using methods from the Structured Learning Technique, Cumulative Micro Training and techniques

from Cognitive Behavioral Therapy trainers stimulated the participants to search for interrelating factors (symptoms, cognitions, emotions, behavior, social environment) that reinforce patients' symptoms. They were taught to inform and reassure patients effectively and offer plausible and understandably explanations for experiencing MUPS, reflected in a clear advice and report to the general practitioners.

We tested the effectiveness of this MUPS focused communication training on specialists' communication skills in a multi-center randomized controlled trial (RCT) in **chapter 4.** The training was implemented for medical specialists and residents in cooperation with six different hospitals throughout the country. There were 123 doctors from eleven specialties participating in the study. They were instructed to include new and follow-up patients at the end of a consultation only when 'no medical explanation or just a partial medical explanation defined patient's symptoms' and videotape the consultation with informed patient consent. Medical specialists and residents were randomly allocated to either the intervention group or the control group after having videotaped up to three patients successfully. There were 62 doctors allocated to the intervention group and 61 to the control group. Stratification factors were type of hospital and seniority (medical specialists versus resident). The participating doctors included and videotaped 478 patients with MUPS. Eighty percent of the doctors (n=98) completed the study with one or more videotaped consultations. All together 449 videotaped consultations of adult outpatient MUPS patients have been independently observed by 3 psychologists before and after the training. We found that trained medical specialists and residents showed a significant larger increase in exploring patients' cognitions and the impact of patients' symptoms on behavior, social environment and emotion than the untrained medical specialists and residents. Trained medical specialists and residents also summarized information in a more patient-centered way and told the patient more frequently about interrelating factors and MUPS than the untrained specialists and residents. No effects were found on the skills for making plans and follow-up appointments.

Medical specialists reported in questionnaires to profit from the skills in exploring, informing and reassuring patients with MUPS and experienced more satisfaction in their medical encounters with MUPS patients. Specialists and residents experienced the communication skills training as very useful for their clinical practice and evaluated the training very positively.

In **chapter 5** we studied in the same RCT the quality of specialists' reply letters about the included MUPS patients to the general practitioner (GP). We assessed 285 reply letters of five medical specialists and one GP. The quality of the reply letter was defined as the sum of eight items, described as: reporting GPs' referral questions, and answering GPs' referral questions, reporting patients' questions, and answering patients' questions, reporting somatic findings, reporting additional testing, explaining MUPS, and giving advice to patient and GP.

We found that trained medical specialists and resident reported and answered patients' questions significantly more often in their reply letters to the GP than untrained doctors did. However, we had to build our conclusions on a low number (60%) of reply letters. Almost all reply letters contained information on somatic findings and additional diagnostic testing. We also found that medical specialists and residents both in the intervention and control group didn't report or answer GPs' referral questions in 50-75% of the cases.

In **chapter 6** we studied in the same RCT the effects of MUPS-focused communication training on patients' health and costs. We used a compilation of validated web-based patient questionnaires to collect data on health outcomes and costs. Patients were asked to fill out these questionnaires at baseline, and after 3 and 6 months. There were 279 patients who filled out the questionnaires at baseline, 159 at 3 months follow-up and 68 at 6-months follow-up. Only 14,2% of the patients remained in the study until the 6-month follow-up. We found no significant effects of training medical specialists in MUPS communication on patients' health and costs, most likely caused by low power due to inadequate patient information, low literacy and low motivation. The value of this study is limited to lessons learnt from our failure to recruit and retain sufficient numbers of patients. To increase power the use of a patient platform to discuss study methods and implementation at beforehand is recommended. Clear patient information, various ways of data collection and patient feedback during the study were overlooked resources in this research.

DISCUSSION

In **chapter 7** we summarized the main findings from the study and discussed its strengths, limitations and practice implications. We developed a feasible, evidence-based and effective communication training for medical specialists and residents from all medical specialties working with adult patients and consulting hours. Evaluation by self-report showed the practical value for medical specialists in everyday hospital practice.

The originality and clinical relevance of the study as well as the design of the training attribute to the strength of this research. We had recruited enough medical specialists and residents to draw conclusions on doctors' level. The quality of our instruments and assessments appeared moderate to high. A severe limitation of the study is the low power on patient level, causing problems in the performance of the cost-utility analysis and influencing the robustness of the results on patients' health.

The training not only contributed to a better communication with MUPS patients but also improved the quality of the specialists' reply letter to the referring general practitioner with regard to patient's questions. Our study showed there is a gap in the exchange

of valid information about MUPS patients in MUPS care at the interface between primary and secondary care. Discussing referral and reply letters about MUPS patients with experts could add to that knowledge.

To distinguish which elements of intercultural doctor-patient communication in MUPS consultations in specialist care work as a barrier or as a facilitator more research is needed.

We recommend that the training be embedded in the postgraduate training for residents, frequently encountering patients with unexplained physical symptoms.

An upgrade of the training with online learning could reduce the number of face-to-face sessions. Succeeding in making a blended MUPS training could lower the threshold for participation and facilitate its implementation in hospital practice. Practicing communication with MUPS patients that are perceived to be difficult by medical specialists may contribute to a more balanced MUPS care for all patients.

CONCLUSIONS

With this thesis we have made a contribution to the knowledge of doctor-patient communication in everyday practice consultations with MUPS patients in medical specialist care. Through our studies we have designed an effective communication training for medical specialists and residents encountering MUPS patients and improved the exchange of valid information from specialist care to general practice.

Our study contributes to a better understanding of MUPS patients and provides medical specialists and residents with optimal knowledge, skills and confidence in their encounters with patients suffering from physical symptoms with an unknown aetiology.

SAMENVATTING

ACHTERGROND

Ongeveer 50% van de nieuwe patiënten die zijn doorverwezen naar een polikliniek van de Neurologie, Gynaecologie, Reumatologie en Interne Geneeskunde, hebben somatisch onvoldoende verklaarde lichamelijke klachten (SOLK). Medisch specialisten vinden communicatie met deze patiënten, met soms zeer invaliderende klachten zonder onderliggende pathologie, doorgaans moeilijker dan communicatie met patiënten met verklaarde klachten. Het probleem is dat specialisten vooral een ziektegeoriënteerde benadering hebben in consulten met SOLK patiënten. Ze willen vooral geen ernstige, zeldzame ziekte over het hoofd zien en zijn daarom bij SOLK soms geneigd meer lichamelijke onderzoeken te doen dan medische richtlijnen aangeven. Ook verwijzen ze patiënten vaak voor alle zekerheid door naar andere specialisten binnen hun ziekenhuis. Daarnaast hebben medisch specialisten de verwachtingen van patiënten niet altijd helder en zien ze zich geconfronteerd met patiënten, die niet kunnen accepteren dat er geen medische verklaring is voor hun klachten. Bovendien voelen medisch specialisten zich vaak minder competent in consulten met SOLK patiënten dan in consulten met patiënten bij wie de klachten wel medisch verklaard kunnen worden.

Wanneer verwachtingen en behoeften van patiënten met medisch onverklaarde klachten door de specialist niet beantwoord worden, voelen deze zich angstig en ontevreden. Het gevolg is vaak een stroef verlopend consult, waarin arts en patiënt niet tot een plausibele en gezamenlijke verklaring en aanpak van de klachten komen. Daar komt bij dat SOLK vanwege de aard van de klachten door artsen onderling verschillend kunnen worden uitgelegd. Soms bevatten die verklaringen tegenstrijdige boodschappen, waardoor patiënten in de war kunnen raken en zich niet serieus genomen voelen. Om de patiënten meer greep op hun klachten te geven, is het belangrijk dat de specialist een uitleg geeft, die zowel voor de patiënt als de arts acceptabel is. In de reguliere opleiding van specialisten wordt hier te weinig aandacht aan besteed, gelet op de omvang van de patiëntenpopulatie met SOLK, de beperkingen die patiënten van de klachten ondervinden en de kosten die SOLK met zich meebrengen.

Aan SOLK liggen verschillende factoren ten grondslag. Er zijn somatische, fysiologische, cognitieve, emotionele en psychosociale aspecten van invloed op de klachten. Hoe deze factoren onderling samenhangen en de klachten versterken, vraagt een individuele en patiëntgerichte benadering van de arts. Onze onderzoekshypothese was dat het

aanleren van SOLK-specifieke kennis en bijbehorende communicatievaardigheden medisch specialisten meer effectief zou maken in de consultvoering met SOLK patiënten, hetgeen een positieve uitwerking zou kunnen hebben op de gezondheid van patiënten en een besparing van de kosten in de gezondheidszorg. In **hoofdstuk 1** is het belang van deze studie nader uitgewerkt en zijn de bijbehorende onderzoeksvragen expliciet beschreven.

METHODEN EN RESULTATEN

We zijn het onderzoek gestart met een systematische review van de literatuur, die in **hoofdstuk 2** is uitgewerkt. We stelden de volgende vragen: 1. Wat is er tot nu toe in de wetenschappelijke literatuur bekend over effectieve arts - patiënt communicatie in de medisch specialistische zorg voor SOLK patiënten? 2. Zijn er al SOLK-specifieke communicatiestrategieën voor medisch specialisten voorhanden? 3. Wat is de invloed van effectieve arts - patiënt communicatie in de medisch specialistische zorg voor SOLK patiënten op beloop van klachten, ongerustheid, patiënttevredenheid, dagelijks functioneren en zorggebruik? Om antwoord te krijgen op deze vragen, hebben we op een systematische wijze literatuur gezocht in PubMed, PsychINFO en Embase. We vonden 1981 artikelen, waarvan er na selectie slechts acht relevante studies overbleven, die we konden includeren. Twee studies beschreven het effect van communicatie op het beloop van klachten, drie studies gingen in op het effect van communicatie op ongerustheid en patiënttevredenheid. Eén studie behandelde het effect van communicatie op het dagelijks functioneren en twee studies gingen in op de zorgconsumptie.

We hebben een kwalitatieve analyse van de resultaten uitgevoerd. Het bleek dat onderzoek naar de effecten van SOLK-specifieke communicatie in de specialistische gezondheidszorg beperkt was. We vonden de volgende aspecten, die de uitkomsten en het zorggebruik van SOLK patiënten gunstig beïnvloeden:

1. Het nauwkeurig in beeld hebben van de verwachtingen van de patiënt.
2. Het geven van een uitleg over SOLK met aanvullend materiaal.
3. Het anticiperen op normale uitslagen van aanvullend onderzoek voorafgaand aan het uitvoeren van dat medisch onderzoek.
4. Positieve arts - patiënt interactie en positieve feedback van de medisch specialist.

In **hoofdstuk 3** hebben we de ontwikkeling van een wetenschappelijk onderbouwde SOLK communicatietraining voor medisch specialisten beschreven. Wij hebben daarbij gebruik gemaakt van Intervention Mapping (IM) om systematisch theorieën, empirie en

praktische handelingsperspectieven in de ontwikkeling van het trainingsmodel toe te kunnen passen.

IM voltrekt zich in een proces van zes stappen. In de eerste stap hebben we een behoeften onderzoek gedaan, waar een review van de literatuur en een pilot–training deel van uitmaakten. De tweede stap was het beschrijven van de doelen van de interventie. In de derde stap hebben we didactische methoden en technieken geselecteerd om de doelen van de interventie uit te werken. De vierde stap behelsde de inhoud van de interventie, ofwel het uitschrijven van de SOLK communicatietraining voor medisch specialisten. Stap vijf bestond uit het maken van een implementatieplan voor de SOLK training. De laatste, zesde stap was het maken van een onderzoeksprotocol om de effectiviteit van de interventie te evalueren.

Met de IM methode hebben we een wetenschappelijk onderbouwde communicatietraining voor medisch specialisten en artsen in opleiding tot specialist (aios) ontwikkeld. De training werd georganiseerd in kleine groepen (12 deelnemers) en werd gegeven door een trainer en co-trainer. In de training werd veel gebruik gemaakt van ervarend leren, rollenspel en feedback als leermethode. Met gebruik van methoden uit de Cumulatieve Micro Training, de 'Structured Learning Technique' en technieken uit de Cognitieve Gedragstherapie, stimuleerden de trainers de deelnemers op zoek te gaan naar onderling samenhangende factoren (klachten, cognities, emoties, gedrag en sociale omgeving), die de klachten van patiënten versterkten. Artsen leerden verder patiënten effectief gerust te stellen en begrijpelijke verklaringen voor de klachten te geven, die ook in de brief naar de huisarts werden vermeld, samen met een helder advies voor het terugdringen van die klachten.

We hebben vervolgens de effectiviteit van de SOLK communicatietraining voor medisch specialisten en aios in een gerandomiseerde en gecontroleerde studie onderzocht en beschreven in **hoofdstuk 4.** De training werd gegeven in zes verschillende Nederlandse ziekenhuizen. Aan het onderzoek hebben 123 artsen deelgenomen, die elf verschillende medische specialismen vertegenwoordigden. Artsen werden geïnstrueerd om nieuwe en vervolgpatiënten te includeren aan het eind van een consult 'als er geen of slechts een gedeeltelijke verklaring was voor de symptomen' en als de patiënt expliciet toestemming gaf voor de filmopname van het consult. Medisch specialisten en aios werden willekeurig toegewezen aan de interventie- of controlegroep zodra ze één of meer videoconsulten met SOLK patiënten succesvol hadden opgenomen. Er werden at random 62 artsen aan de interventiegroep en 61 artsen aan de controlegroep toebedeeld. De artsen includeerden in totaal 478 patiënten met SOLK en legden de consulten met hen vast op de video. Tachtig procent van de artsen (n=98) complementeerden de studie met één of meer videoconsulten. De videoconsulten werden vervolgens door onafhankelijke psychologen ' blind' beoordeeld, dat wil zeggen dat zij geen informatie

hadden of de arts tot de interventie- of controlegroep behoorde. Er bleken 449 videoconsulten geschikt te zijn voor analyse. Uit de resultaten bleek dat getrainde artsen significant vaker de cognities en de impact van de klachten van de patiënt op het gedrag, emoties en de sociale omgeving exploreerden dan ongetrainde artsen. Verder bleken getrainde medische specialisten en aios vaker informatie op een patiëntgerichte wijze samen te vatten dan ongetrainde artsen en legden ze vaker SOLK uit aan de hand van "in stand houdende factoren". Er werden geen effecten gevonden ten aanzien van de vaardigheden in het afronden van een consult en het maken van plannen en afspraken.

Medisch specialisten gaven in de evaluatie van de training aan dat ze baat hadden bij de aangeleerde SOLK vaardigheden en dat ze zich beter op hun gemak voelden in de consulten met SOLK patiënten. Medisch specialisten en aios beoordeelden de training als erg nuttig voor de dagelijkse praktijk en gaven een hoog cijfer als waardering.

In **hoofdstuk 5** bestudeerden we de kwaliteit van de brieven die de specialisten aan de huisarts schreven over de 478 geïncludeerde SOLK patiënten uit het in hoofdstuk 4 beschreven onderzoek. Er zijn 285 brieven beoordeeld door vijf medisch specialisten en één huisarts. De kwaliteit van de brief werd gedefinieerd aan de hand van de volgende acht items: het benoemen van de verwijsvraag van de huisarts, het beantwoorden ervan, het benoemen van de hulpvraag van de patiënt, het beantwoorden ervan, het rapporteren van lichamelijke bevindingen, het vermelden van aanvullende diagnostiek, het uitleggen van SOLK en het geven van een duidelijk advies.

De resultaten waren dat medisch specialisten en aios, die de training hadden gevolgd, de hulpvragen van patiënten vaker benoemden en beantwoordden in hun brief aan de huisarts dan ongetrainde artsen. Een kanttekening daarbij is wel dat we onze conclusies slechts op 60% van het totaal aantal geïncludeerde patiënten konden baseren. Bij 40% van de patiënten kon er geen brief aan de huisarts uit het elektronisch patiëntendossier worden achterhaald, meestal omdat deze niet was aangemaakt door de betreffende specialist. Bijna alle brieven bevatten informatie over lichamelijke bevindingen en aanvullende diagnostiek. Ook bleek dat medisch specialisten en aios zowel voor als na de training in 50-75% van de gevallen niet de verwijsvragen van de huisarts noemden of beantwoordden.

In **hoofdstuk 6** hebben we in het in hoofdstuk 4 en 5 beschreven onderzoek naar de effecten van de SOLK communicatietraining onderzocht op de gezondheid van patiënten en op de directe en indirecte kosten. We hebben gebruik gemaakt van een compilatie van gevalideerde vragenlijsten om data te verzamelen over gezondheid en kosten. Patienten konden deze vragenlijsten meteen na het consult met de specialist online invullen, met een eerste follow-up na 3 maanden en een tweede na 6 maanden. Er waren 279 patiënten die de vragenlijsten meteen na het consult hebben ingevuld, 159 patiënten

hebben de vragenlijsten na 3 maanden nogmaals beantwoord en slechts 68 patiënten (14.2%) hebben de vragenlijsten na 6 maanden ingevuld. We hebben geen significant lange termijn effect van de training kunnen vaststellen op de gezondheid van patiënten en op de kosten, voornamelijk vanwege de lage respons aan het eind van de studie, resulterend in een te lage power op patiëntniveau. De sterk afgenomen respons van patiënten gedurende het onderzoek was waarschijnlijk het gevolg van onvoldoende adequate informatie aan de patiënten over het belang van de vragenlijsten. Daarnaast waren een lage taalvaardigheid en lage motivatie bij de patiënten om driemaal de vragenlijsten in te vullen ook van invloed op de lage respons. De waarde van deze studie is beperkt tot de les dat er om voldoende patiënten te rekruteren en te behouden voor dergelijk onderzoek veel aandacht besteed moet worden aan uitleg over het doel van het onderzoek. Om deelname van patiënten te vergroten bevelen wij het gebruik van een patiënten klankbordgroep aan, waarin de methoden van onderzoek en begeleidend informatiemateriaal worden besproken.

DISCUSSIE

In **hoofdstuk 7** hebben we een samenvatting van de belangrijkste bevindingen van deze studie gegeven en de sterke en zwakke punten ervan besproken, evenals implicaties voor de praktijk. Het belangrijkste resultaat is dat we een wetenschappelijk onderbouwde en effectieve communicatietraining hebben ontwikkeld voor specialisten en aios van alle medische disciplines, die te maken hebben met volwassen SOLK patiënten in poliklinische spreekuren. Ons onderzoek heeft duidelijk gemaakt dat getrainde artsen beter met SOLK patiënten gaan communiceren en dat artsen de training hoog waarderen vanwege het nut voor de alledaagse praktijk in een ziekenhuis.

De originaliteit en klinische relevantie van de studie, samen met het ontwerp van de training zijn de sterke punten in dit onderzoek. We hebben voldoende artsen gerekruteerd om conclusies op artsniveau te trekken. De kwaliteit van de onderzoeksinstrumenten en de assessments om de vaardigheden van de artsen te bepalen was matig tot hoog. Een belangrijke beperking van de studie is de lage power op patiëntniveau, waardoor we problemen hadden in de uitvoering van de kosteneffectiviteitanalyse en de robuustheid van de resultaten op patiëntniveau negatief is beïnvloed.

De training heeft bijgedragen aan een betere communicatie met SOLK patiënten en heeft daarnaast ook een bijdrage geleverd aan de verbetering van de kwaliteit van de brieven van de specialist aan de huisarts ten aanzien van de rapportage en beantwoording van de hulpvragen van de patiënt. Ons onderzoek heeft laten zien dat er een kloof is tussen de eerste- en tweedelijns gezondheidszorg wat betreft de uitwisseling van informatie over SOLK patiënten Het met experts bespreken van zowel de brieven die door

de specialist aan de huisarts worden gestuurd, als de verwijsbrieven van de huisarts over patiënten met onvoldoende verklaarde klachten, kan hierin verandering brengen.

Er is meer onderzoek nodig om te weten welke elementen in de interculturele communicatie in SOLK consulten als blokkade werken en welke elementen deze communicatie juist vergemakkelijken en verbeteren.

We bevelen de training aan in de postacademische nascholing van aios, die veel met SOLK patiënten te maken hebben. Met online leermiddelen kan het aantal uren face-to-face training ingekort worden en kan de SOLK training mogelijk gemakkelijker in ziekenhuizen worden geïmplementeerd. Het oefenen van communicatie met SOLK patiënten, die als lastig worden beschouwd door medisch specialisten, kan bijdragen aan een meer gebalanceerde zorg voor alle patiënten met SOLK.

CONCLUSIE

Met dit proefschrift hebben we een bijdrage geleverd aan de kennis van arts-patiënt communicatie in de alledaagse consulten met SOLK patiënten in de medisch specialistische zorg. Met onze studies hebben we een effectieve communicatietraining voor medisch specialisten en aios ontwikkeld, gericht op patiënten met medisch onverklaarde klachten én hebben we de uitwisseling van waardevolle informatie van de specialist naar de huisarts bevorderd.

Onze studie draagt bij aan een beter begrip van SOLK patiënten en voorziet medisch specialisten en aios met optimale kennis, vaardigheden en vertrouwen in hun ontmoetingen met patiënten, die last hebben van lichamelijke klachten met een onbekende oorzaak.

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CURRICULUM VITAE

Anne Weiland was born on the 15th of April 1959 in Leeuwarden, the Netherlands. She attended secondary school from 1971 to 1977 at the 'Christelijk Gymnasium' in Leeuwarden. From 1977 to 1984 she studied Adult Education at the Faculty for Social Sciences at the University of Groningen. She focused her study on Health Sciences, Social Psychiatry and Patient empowerment, and obtained a 1st degree in teaching. She attended postgraduate education on Project Management, Coaching Psychology and Cognitive Behavioral Therapy.

From 1985-1989 she worked for the Dutch Association for Neuromuscular Diseases in Baarn. She cooperated with several Dutch University Medical Centers to improve psychosocial care for patients with neuromuscular diseases and initiated projects on education, parenthood, genetic counseling, mechanical ventilation, home care, and bereavement.

From 1989-2001 she worked in various positions at the Home Mission Office of the Protestant Church in the Netherlands, Utrecht, on project management (poverty among women, interreligious dialogue and international student chaplaincy). From 1999 she combined this work with teaching communication at 'Hogeschool Windesheim', Utrecht.

From 2001-2004 she worked at the Department of General Practice, Erasmus MC University Medical Center Rotterdam, in the vocational training of residents and general practitioners (GPs). In 2003 she participated in the train-the-trainer course on Cognitive Behavioral Techniques for the management of patients with Medically Unexplained Physical Symptoms (MUPS) in General Practice and performed postgraduate education for GPs on this subject. From 2004-2010 she worked as sector manager Psychosocial Care at the Erasmus MC, University Medical Center Rotterdam. She restructured the Psychosocial Care and initiated projects on domestic violence, child abuse, pastoral care and transfer care with other health care bodies in Rotterdam. She contributed to the medical education of students and nurses.

In 2007 she began training medical specialists and residents in MUPS-focused communication. In 2010 she started her PhD study described in this thesis at the Department for Internal Medicine, Erasmus MC University Medical Center Rotterdam and the Institute of Psychology at the Faculty of Social Sciences at the Erasmus University Rotterdam. She combined her PhD study with project development at Foundation Ruimzicht, Utrecht, and initiated research on 'coaching and engagement for ministers' in cooperation with ArboNed, Nyenrode Business University, VU University and Berenschot Consultancy. Presently she works at the Department of Internal Medicine, Erasmus MC, University Medical Center Rotterdam on MUPS research & training, www.erasmusmc.nl/onverklaarde-klachten. She has a private practice aimed to support medical specialists, residents and ministers in communication, www.anneweiland.nl.

PhD PORTFOLIO

	Year	Workload (ECTS)
1. PhD training		
General courses		
- CPO course Erasmus MC University Medical Center Rotterdam	2011	0,3
- Cochrane Course on Systematic Review, AMC	2010	0,3
- PhD course Erasmus MC	2012	0,3
- Statistics and research methodology, private course by Prof. Dr. L.R. Arends, Erasmus University Rotterdam	2013/2014	4
- SPSS introduction course and SPSS research skills course, Vijfhart IT opleidingen, Nieuwegein	2014	2
- English biomedical writing and communication, Erasmus MC	2014	3
Specific courses		
- Training 'Experiential Communication Skills teaching in Health Professional Education', School of Clinical Medicine, University of Cambridge, UK	2011	1
- Research Meetings Platform Patient-Provider-Interaction, NIVEL, Utrecht	2010/2015	2,5
- Training 'The consequences model for MUPS patients' by Dr. Y. van' t Rood & Drs. C. Roos, LUMC, Leiden	2013	1
- Training 'Presentation skills', De Baak, Driebergen	2012	1
Seminars and workshops		
- NVMO (pre)conference workshops 'article writing'	2009	0,1
- Workshops 'literature search', 'use of Endnote', Erasmus MC	2009	0,3
- Conference Medically unexplained symptoms 'Body and mind, one care', Benecke, Barneveld	2011	0,3
- Conference 'The Unexplained explained', Medilex, Utrecht	2013	0,3
- NVMO workshops on 'Engagement', 'Diversity in medical education', 'Communication skills', UMC Utrecht	2013/2014	0,8
- Graduate Research Day, Institute of Psychology, Faculty Social Sciences, Erasmus University Rotterdam	2013	0,4
- Workshop 'writing research proposals Horizon 2020', Erasmus University Rotterdam	2013/2014	0,1
Oral presentations		
- 'Patients with Medically Unexplained Physical Symptoms (MUPS) in outpatients clinics and the effect of specialist communication on patient outcomes and use of care' at the Departments of ENT, Anesthesiology, Pain Medicine, Internal Medicine and Neurology of the Erasmus MC, Rotterdam	2011/2013	1,3
- 'Patients with MUPS and the importance of postgraduate communication focused on MUPS for medical specialists' at the Staff and Board of the Diakonessenhuis, Utrecht.	2012	0,3

	Year	Workload (ECTS)
- 'Patients with MUPS in specialist care and occupational health services' at the departments of Internal Medicine (2x) and Neurology of the Medical Center Haaglanden, The Hague	2012	0,6
- 'Patients with MUPS and postgraduate MUPS-focused communication for medical specialists' at the Department of Internal Medicine, Sint Antonius Hospital, Nieuwegein and at the NVMO workshop 'communication skills'	2012/2013	0,6
- 'The challenge of MUPS patients', for medical staff at the Maasstad Hospital, Rotterdam and for the neurologists of Centraal Brein, Amersfoort	2012	0,6
- Effectiveness and efficiency of a communications skills training focused on MUPS for medical specialists; Great Research Round, Department of Psychiatry, University Medical Center Groningen.	2014	0,5
(Inter)national conferences		
- Saint Andrews, UK, ICCH with 1 oral presentation	2012	1
- Montreal, Canada, ICCH with 1 oral presentation	2013	1
- Amsterdam, NL, ICCH with 2 oral presentations	2014	1
- Maastricht, NL, Internistendagen NIV, 4 workshops Meet The Expert.	2014	1
- Antwerp, B, Science Days Internal Medicine Erasmus MC, poster presentation	2014	1
- Maastricht, NL, 4th European Conference on Symptom Validity Assessment with 1 oral presentation	2015	1
Other		
- Reviews for Journal Pain and Symptom Management, and Health Education Research	2013/2014	1,5
- 4 workshops 'MUPS patients at the interface between general and specialist care' for General Practitioners in cooperation with Diakonessenhuis Utrecht and WDH Midden-Nederland (DUO dagen)	2014	0,5
- Workshop about 'MUPS' for KNMG Zuid-West Brabant, at Amphia Hospital Breda.	2014	0,4
- 5 workshops 'MUPS skills' for resident Internal Medicine, JNIV conference, Amersfoort	2014	0,4
- Writing chapter on 'doctor-patient relationship and MUPS' for General Practice (reeks Praktische Huisarts Geneeskunde)	2014	2

	Year	Workload (ECTS)
2. Teaching		
Lecturing		
- 12 MUPS focused communication skills training programs for medical specialists and residents	2012/2014	12
- Workshop train-the-trainers MUPS focused communication training for medical specialists and residents, Erasmus MC	2011	1
Supervising practicals and excursions, Tutoring		
- Ginger Beau Langbroek, student University College Roosevelt, Middelburg.	2013/2014	2
Supervising Master's theses		
- Dineke Abels and Nedim Köse, Master students Psychology, Open University, Heerlen.	2011/2014	4
- Nelleke Tolenaars-den Braber, Master student Psychology, Institute of Psychology, Faculty of Social Sciences, EUR.	2012/2014	2
- David Kosak, Master student IBMG/IMTA, EUR.	2014	1
Other		
- Development and implementation of a MUPS-focused communication course for social workers at Rehabilitation Center Revant / Lindenhof, Goes	2012	2
- Project management for the study 'Effects of coaching ministers; a randomized controlled trial. A cooperative project of Foundation Ruimzicht, ArboNed, Nyenrode Business University, VU University, and Berenschot Consultancy, http://www.ruimzicht.nl/predikanten.	2012/2014	8

Publications

Weiland A, et al. Training course and manual for medical specialists and residents: 'Communication with patients with medically unexplained physical symptoms'. Erasmus MC, University Medical Center Rotterdam. 2011. (In Dutch).

Weiland A, Van de Kraats R, Blankenstein AH, Van Saase JLCM, Van der Molen HT, Bramer WM, et al. Encounters between medical specialists and patients with medically unexplained physical symptoms; influences of communication on patient outcomes and use of health care. A literature overview. Perspect Med Educ. 2012;1:192–206.

Weiland A, Blankenstein AH, Willems MHA, Van Saase JLCM, Van der Molen HT, Van Dulmen AM, et al. Post-graduate education for medical specialists focused on patients with medically unexplained physical symptoms; development of a communication skills training program. Patient Educ Couns. 2013;92(3):355-60.

Weiland A, Blankenstein AH, Van Saase JLCM, Van der Molen HT, Jacobs ME, Abels DC, Köse N, et al. Patients with medically unexplained physical symptoms: training medical specialists to communicate better. A randomized controlled trial. Submitted.

Weiland A, Blankenstein AH, Willems MHA, Van Saase JLCM, Van Daele PLA, Van der Molen HT, et al. Training specialists to write appropriate reply letters to general practitioners about patients with medically unexplained physical symptoms; a cluster-randomized trial. Patient Educ Couns. 2015. Epub ahead of print; doi 10.1016/j.pec.2015.06.021.

Weiland A, Blankenstein AH, Van Saase JLCM, Van der Molen HT, Kosak D, Vernhout RM, Arends LR. Lessons learnt. Low patient power in a randomized controlled trial on the effectiveness of training medical specialists in communication with patients with unexplained symptoms. International Journal of Person Centered Medicine. 2015. Invited submission.

Weiland A. Het belang van een goede arts -patiënt relatie bij SOLK voor de huisarts. Hoofdstuk in 'Somatische Onvoldoende verklaarde Lichamelijke Klachten'. Reeks Praktische Huisartsgeneeskunde. Bohn Stafleu van Lochem. 2015. (In dutch).

Van Rhenen WA, Stam AJ, Weiland A. Bevlogenheid en burn-out onder predikanten; een gerandomiseerd, gecontroleerd onderzoek. Handelingen. 2015;42(1):46-57. (In Dutch).

List of Abbreviations

CBT	Cognitive Behavioral Therapy
CFS	Chronic Fatigue Syndrome
CMT	Cumulative Micro Training Method
CPP	Chronic Pelvic Pain
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
EACH	European Association for Communication in Healthcare
MUPS	Medically Unexplained Physical Symptoms
ENT	Ear Nose Throat
EUR	Erasmus University Rotterdam
FHCS	Four Habits Coding Scheme
FMS	Fybromyalgia Syndrome
GP	General Practitioner
IBS	Irritable Bowel Syndrome
ICCH	International Conference on Communication in Healthcare
IM	Intervention Mapping
JNIV	Jonge Nederlandse Internisten Vereniging
KNMG	Koninklijke Nederlandsche Maatschappij tot bevordering der Geneeskunst
MDR	Multi Disciplinaire Richtlijn
NIV	Nederlandse Internisten Vereniging
PNES	Psychogenic Non-Epileptic Seizures
RCT	Randomized Controlled Trial
SCEBS	Somatic, Cognitive, Emotional, Behavioral, Social aspects of symptoms
SF-36	Short Form Health Survey
SIG	Special Interest Group
SLT	Structured Learning Technique
SOLK	Somatisch Onvoldoende verklaarde Lichamelijke Klachten
TiCP	Trimbos/iMTA questionnaire for Costs associated with Psychiatric Illness
VAS	Visual Analogue Scale
WDH	Werkgroep Deskundigheidsbevordering Huisartsen
WI	Whitely Index
4DSQ	Four Dimensional Symptom Questionnaire

Keywords

Medically unexplained physical symptoms
MUPS
Doctor-patient communication
Physician-patient communication
Doctor-patient relationship
Patient-centered care
Systematic review
Postgraduate medical education
Patient outcomes
Daily functioning
Symptoms
Use of care
Health anxiety
Reassurance
Patient satisfaction
Randomized Controlled Trial
Cluster-randomized trial
RCT
Training program
Consultation skills
Communication
Videotaped consultations
Reply letters
Patient questionnaires
Medical specialists
Residents
General Practitioners
Costs
Cost effectiveness analysis
Low power