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Reasons for encounter and symptom diagnoses: a superior description of patients' problems in contrast to medically unexplained symptoms (MUS)

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This is a review of the literature on the role of symptoms in family practice, with a focus on the diagnostic approach in family medicine (FM). We found two, contrasting, approaches to reducing symptoms presented by patients in primary care, especially those which do not immediately allow the definition of a disease-label diagnosis. Years of research into 'medically unexplained symptoms' (MUS) has failed to support an international body of knowledge and cannot convincingly support the philosophy on which the reduction itself is based. This review supports the approach of researching reasons for encounter as they present to the family doctor, without artificial mind–body metaphors. The medical model is shown to be an incomplete reduction of FM, and the concept of MUS fails to improve this situation. A new model based on a substantial paradigm shift is needed. That model should be the biopsychosocial model, reflected in the philosophical concepts of the International Classification of Primary Care and the value of the patient's 'reason for encounter'. There is more to life than medicine may diagnose, and FM should strive to move closer to the lives of our patients than the medical model alone could allow.

Keywords. Diagnosis, diagnostic process, family medicine, ICPC, International Classification of Primary Care, medically unexplained symptoms, MUS, primary care, primary health care, reason for encounter, reasons for encounter, symptoms, symptom diagnosis.

Introduction

This article is an outcome of background reading for a research project on the epidemiology of family medicine (FM) in patient populations.[1,2] For that research project, routine clinical practice data are collected with the International Classification of Primary Care (ICPC) using an electronic medical record within the Transition Project.[3–9] The research focussed on the content of the process of diagnosis in FM in different populations. Patients' presenting symptoms/reasons for encounter (RfEs) were core elements of the research to describe the role and impact of the patients' perspective on the diagnostic process and on subsequent interventions. However, a major conclusion of the project was that the inclusion of routine data on patients' RfEs adds considerably to the power of FM data, including on the process of diagnosis, but, unfortunately, that such data are relatively sparse.[1,2] In the process of this research study, we performed a systematic review of the literature on the role of symptoms/RfEs as they are presented by the patient in FM, with a focus on the diagnostic process. This review is presented below.

Literature review

Author IO performed a series of bibliographic searches using Pubmed as the primary search engine on 1 March 2010. Details of these searches are given immediately below. We included all English language papers published before 1 March 2010, which described studies which focussed on symptoms, or the RfE, or 'medically unexplained symptoms' (MUS) in primary care, with a perspective on the diagnostic approach to such symptoms/RfE/MUS. The retrieved papers were reviewed by both authors. Papers were not excluded on the basis of, or indeed assessed against, quality criteria since the aim of the review was to summarize the conceptual and theoretical framework of symptoms/RfE research in primary care and especially FM rather than to produce a quantitative summary of the outcomes of such research.

The search for 'symptoms' and 'primary care' returned 57 674 hits. From the titles, it became clear that most articles dealt with symptoms in the broadest sense: presenting symptoms but also (and even quite often) symptoms and signs that appeared to exist

during examination and history taking. Limiting the search to 'patients' presenting symptoms' and 'primary care' returned 2031 hits. An unexpected trend in these papers was a growing body of literature that dealt with MUS. In view of the obvious focus in these articles on patients' presenting symptoms, we decided to further focus our review on this subject. At this preliminary stage of the review, it became apparent that two broad approaches to the patients' presenting symptoms/RfE exist in the literature: one which is exemplified by the ICPC and which studies symptoms/RfEs as they present in clinical practice and another exemplified in many articles on MUS which categorizes presenting symptoms into two broad categories, medically 'explained' (implicitly) and 'unexplained'.

The second search performed by IO searched for articles that dealt with the role of the patient's presenting symptoms/RfEs/MUS in the diagnostic process.

Firstly, the search for 'reason for encounter' and 'primary care' led to 57 results. The retrieved abstracts were screened by IO for relevance. Forty-three articles which discussed the concept of the RfE and/or that collected or used RfE data were included in this review.[9–51] Of these, 14 elaborated on the RfE concept,[11,38–41,43–51] 29 used ICPC as a classification,[9,10,13,14,18,23,25,27,28,30,33–51] and 7 originated from or were closely related to the Transition Project, with which the two authors are closely associated.[13,23,27,41,44,50,51] Articles known to the authors, or identified from cross-referencing from retrieved articles, which met the inclusion criteria were also included in the review.[6–8,52–55]

Secondly, the search for 'medically unexplained symptoms' and 'primary care' returned 141 hits. The retrieved abstracts were screened by IO for relevance. We excluded papers which focussed on the views and/or training of primary care workers; or on outcomes, interventions and/or therapy or on specific groups of patients (e.g. the military, young children, people who had been a victim of a disaster, pregnant women). This process led to the inclusion of 49 articles.[56–104]

Authors IO and JKS reviewed all articles, without exclusion on the basis of quality criteria. The authors declare a bias in this field, having been involved in longstanding research based on the use of ICPC.

Results

During this review, it became evident that the two broad categories of publications reflect two different approaches to conceptualizing patients' presenting symptoms and their relationship to the process of diagnosis in FM.

ICPC advocates recording the patients' complaints as they are presented to the family doctor (FD). The relationship between the patient's RfE and the doctor's diagnosis may then be observed and described empirically. ICPC does not cater for mind–body metaphors, and RfEs are not labelled as 'physical' or 'psychological.' If a disease-label diagnostic label is not appropriate, since the relevant diagnostic criteria are not met ICPC recommends the use of the symptom itself as a diagnostic label.

MUS, as a paradigm, proposes the existence of a substantial proportion of patients that present, sometimes over an extended period of time, with physical complaints that are not attributable to a defined disease. MUS conceptualizes such people as having a much higher probability of suffering from underlying psychological/social/psychiatric problems. Essentially, if a symptom does not lead to a diagnosis with a disease label, then that symptom has no medical 'explanation' and must be the result of somatization.

This review thus identified two contrasting diagnostic approaches to patients' presenting symptoms in FM. These two approaches are discussed in detail below.

Where it all starts: the reason for the doctor–patient encounter

An encounter in FM starts with a patient presenting with one or more RfEs, either in the form of a symptom or in the form of complaint (e.g. 'headache'), a diagnosis (e.g. 'diabetes') or a request for an intervention, such as a prescription, advice or a referral. The FD then formulates a most probable diagnosis and performs one or more interventions (including none other than 'watchful waiting') on that basis.[3–5,7,8]

This representation of the doctor–patient encounter is widely accepted and is indeed an international standard approach.[4,5,7,8] However, quite often not all these elements are recorded in the patients' medical record. ICPC[3–8] offers an accessible and practical solution for recording all elements of the encounter, in that it provides a single terminology to describe patients' RfEs, the doctor's diagnosi(e)s and the interventions that take place.

ICPC also offers the advantage of enabling the FD to use a symptom as a diagnostic label when no disease has (yet) been diagnosed, and, on the other hand, to describe the patient's RfE with a disease label when a patient presents with such an RfE as 'doctor, I came for my migraine'. Using symptom diagnoses for problems which do not fit the diagnostic criteria for a more specific disease-label diagnosis has many advantages, not least of which is the accuracy of labelling of the diagnosis.[1,2,9]

Moreover, the fact that documenting and coding patients' RfEs (and not only diagnoses and interventions) with ICPC improves the quality of primary care data has been amply argued and demonstrated, most recently by the studies of Soler *et al.* in this issue.

The RfE allows much richer understanding of what is 'going on' in the consultation, both of the perspective of the patient and of the process of diagnosis.[1,2,7–14,40,41,44,46–53,55] Nevertheless, this only occurs quite rarely within international primary care, and the diagnosis is often the only element of the encounter to be documented.[1,2,6,8,9] The fact that such data are often recorded on the basis of encounters and not episodes of care,[5] further complicates the interpretation of such data since the evolution of the problem over time is not captured and data accuracy consequently suffers.[1,2,9]

In fact, this finding is rather surprising in the context of ubiquitous pleas for patient-centred care. One would have expected that formal attention for that which patients verbally bring forward as their RfE would rather have flourished since focussing on and documentation of that RfE underscores the essential role of the patient as an autonomous and competent individual, who is not merely a person with or without a disease. At the level of direct patient care, for an FD to be able to provide adequate care, it should at least be clear why a patient presents to the doctor and what their expressed expectations are.

As evidently useful the concept of the RfE is for direct patient care, RfE data also have great potential for epidemiology. Comparative FM data from countries as different as the USA, Japan, Poland, Serbia, Malta and the Netherlands have shown that similarities between the databases were better reflected by the way patients formulate their demands for care than the diagnoses made by the FD.[1,2,9,52]

Additionally, studies that routinely document patients' RfEs have made available extensive knowledge about the prior and posterior probabilities of a diagnosis, when a patient from a certain sex/age group presents with a specific symptom or complaint. The likelihood ratio of an RfE for a defined diagnosis is at the core of evidence-based decision making. The likelihood ratio updates the prior (pre-test) probability, to give a posterior (post-test) probability of a diagnosis being present, given a RfE.[1–3,6–8,55] Within the broad array of contentions concerning the competences required of FDs, there is general agreement on the importance of estimating the probability of disease in unselected patients.[105,106] Such data are especially important for medical education and decision support.[1,2,55]

As opposed to other medical specialties, FDs do not see a selected population but deal with people with a broad range of health problems in different stages of development. FDs work in a context of uncertainty, more so than other medical specialists, also since they often deal with fuzzy data in a complex health care world. A substantial proportion of the medical history of their patients is not readily available to be documented before the encounter starts but is, to a large extent, constituted during the encounter as a result of the interaction between doctor and patient. This is consequently a major reason to identify, classify and code patients' RfEs, in order to document this complex process in its entirety. Only then would the record of the encounter be accurate and complete.

The RfE is not only a core element of the process of making the diagnosis but also strongly influences the interventions that subsequently occur.[2,3,8,27,55,105,107] For some health problems, the relationship between the nature of the diagnosis and the subsequent interventions is strongly influenced by the problem itself, such as in the case of excessive earwax, an ankle sprain or a foreign body in the eye. Quite often, however, the nature of an intervention cannot be explained by the diagnosis alone. For example, in dealing with patients who have relationship issues or feelings of sadness and depression, FDs act differently in individual cases, depending on the specific requests and priorities of the individual patient.[3,27] Consequently, ICPC also includes codes for RfEs in the form of a patient request (for a prescription, advice, an X-ray, a certificate). Table 1 presents data from the Transition project in the Netherlands concerning eight frequent interventions. It shows that if patients ask for a specific intervention, FDs meet their request more than half of the time (mean 56%, range 45%–79%).[3] However, the converse does not hold, and when one looks at all the FDs' interventions (last column), these actions follow or result from a patient's prior explicit request in a minority of cases (mean 15%, range 6%–26%).[3] Performing, or not performing, a defined intervention is evidently influenced by both the patient and the FD, and it is the influence of the RfE that explains differences in professional behaviour in episodes of the same diagnosis to a substantial degree. Therefore, describing and understanding the content of FM requires insight not only into diagnoses and interventions but also into patients' RfEs.

The symptom diagnosis

An essential characteristic of FM, reflected in ICPC, is the availability of the category of symptom diagnoses.[1–5,8,13,27] Often, FDs deal with health problems at the earliest stages of development, at high levels of diagnostic uncertainty. Consequently, there is often no better diagnostic label other than the presented symptom itself, especially at the start of an episode of care in FM.[1–5,8,13,27,55]

If a patient presents with, for example, 'stomach pain' at the start of a new episode of care, it may well be that the FD cannot decide on a more specific diagnosis, with any certainty, other than the fact that the patient suffers from stomach pain, pending further investigation. Using a symptom diagnosis echoing the RfE, rather than

TABLE 1 *The relation between the patient's request for an intervention and the intervention occurring and vice versa. Source: Okkes et al.*[11]

Intervention (ICPC code)	Presented as RfE (per 1000 patient years and *N*); % of request met	Intervention performed (per 1000 patient years and *N*); % requested as an RfE
Physical exam (*31)	562 (*n* = 112 967); 53	2593 (*n* = 521 577); 18
Blood test (*34)	91 (*n* = 18 384); 58	254 (*n* = 51 062); 26
Radiology/imaging (*41)	10 (*n* = 1992); 45	100 (*n* = 20 144); 6
Advice (*45)	129 (*n* = 26 036); 49	1230 (*n* = 247 345); 13
Prescription (*50)	380 (*n* = 76378); 79	1601 (*n*= 323 040); 20
Counselling (*58)	19 (*n* = 3881); 63	83 (*n* = 16 667); 19
Referral primary care (*66)	24 (*n* = 4809); 56	140 (*n* = 28 090); 12
Referral secondary care (*67)	31 (*n* = 6140); 48	201 (*n* = 40 518); 10

a 'tentative' or 'preliminary' disease diagnosis such as 'biliary colic', 'gastritis' or 'peptic ulcer' has the advantage of precision at a lower level of specificity, both for direct patient care and for epidemiology.

The certainty of the diagnosis and the accuracy of the diagnostic label are thus improved by using a symptom diagnosis when appropriate. In fact, the utilization of a disease-label diagnosis in cases where the criteria are not met could be criticized as unscientific or at the very least epidemiologically imprecise. From an epidemiological point of view, the availability of a symptom diagnosis allows the FD to avoid using an inappropriate and unproven disease diagnosis which does not yet fit, thus keeping disease classes 'clean'.[4,5] Symptom diagnoses, by their nature, reflect the patient's request for care. They are very often based on the symptom the patient presented in the first place (e.g. an RfE of 'cough' resulting in a symptom diagnosis of cough). Documenting them as such prevents patients from being prematurely or incorrectly labelled with an uncertain diagnosis, potentially preventing harm by preventing unnecessary anxiety or inappropriate interventions. In this manner, diagnoses are thus not made beyond the appropriate level of certainty. In our example, it is appropriate to conclude, at the start of the episode of care, that the patient suffers from stomach pain, but not to define a disease-label diagnosis. The symptom diagnosis stomach pain is sufficient to guide appropriate symptomatic treatment and further investigations.

The category of symptom diagnoses in ICPC also encompasses a large variety of concerns and problems, which may lead patients to consult their FD, such as fear of a disease (e.g. cancer, sexually transmitted disease) or inability to perform certain 'common' functions, regardless of the existence of a disease that might justify that fear or explain that loss of function. Symptom diagnoses include rubrics for patients' mood and feelings (nervous, anxious, tense and sad) and 29 codes allow for coding the social problems that people may be struggling with.[4,5]

Over the years, the concept of symptom diagnosis as classified within ICPC has given rise to both misunderstanding and criticism. One misunderstanding is that a symptom diagnosis should be used for describing 'mild cases'.[56] On the contrary, a symptom diagnosis in ICPC has no implied indication whatsoever of the severity of the symptom. Headache is headache, regardless of the severity. This is true for all diagnoses in ICPC: psoriasis is called psoriasis, be it a patient with a small spot on the left elbow or one so severely affected as to require cytotoxic chemotherapy.[4,5]

The developers of ICPC, Lamberts and Wood, reported a reaction of one of their FD colleagues as an example of this criticism:

> I find it personally objectionable to ask the patient why he has come to see me and then diagnose his problem in the form of a symptom diagnosis. I have not spent most of my adult life in medicine to be diminished in this way. I can diagnose any symptom or complaint of my patients with a proper disease label.[6]

Even though the latter claim is undeniably false, its source reflects an understandable conundrum. What kind of a profession would FM be if it had nothing to contribute to a presented problem? The answer is that by providing 'only' a symptom diagnosis, actually a very real and very professional contribution has been made: the professional assessment that, after the completion of the doctor–patient encounter and after considering everything the patient has told or shown, the only certain diagnosis applicable is a symptom diagnosis. Based on that diagnosis, symptomatic treatment and watchful waiting may be the most appropriate action, and

invasive procedures or potentially toxic medication may be appropriately avoided. It is not an easy or trivial choice but rather a scientific and important process with a hard measurable outcome.

MUS and somatization

We found a substantial body of literature on medically unexplained (physical) symptoms (MUS or MUPS).[56–104] The argument underlying 'MUS' as a concept is the existence of a substantial proportion of patients who present, sometimes over an extended period of time, with physical complaints, which are not attributable to a specific disease entity. This has led to the hypothesis that such people have underlying psychological/social/psychiatric problems, which manifest physical symptoms.

In the 20th century, this phenomenon was termed 'somatization', and in severe cases, 'somatization disorder', and doctors were urged to prevent people from pursuing such dysfunctional consulting behaviour.[57,59,65,66,69,73] Recent years have shown a revival of the debate on somatization, now in the guise of MUS. To a large extent, the same fundamental observations and ideas underpin the recent literature on MUS. In the same way that existing syndromes such as 'CFS' (Chronic Fatigue Syndrome), 'IBS' (Irritable Bowel Syndrome) and 'fibromyalgia' have overlapping diagnostic criteria, similarly the concept of MUS is an extension of the argument that such symptoms might usefully be lumped together.[57–63] In this way, complaints that formerly had been lumped into a number of different syndromes are now lumped into an even larger 'super' syndrome, with the common characteristic of not being explained by one or more specific medical diagnoses.

Research on and into MUS has developed a broad range of expert opinions, unresolved questions and open criticism of both doctors and patients.[57–59] The concept of MUS is rather imprecisely defined, and this is evidenced in the literature. Articles often open with the argument that MUS is a frequent problem for both primary and secondary care doctors. However, the prevalence figures differ considerably: 'play a major role',[75,84] 'a large number',[65] 'common',[58,60,66,67] 'on average 13%',[73] '16.1%',[89] '10–20%',[69] '∼20%',[68] '19.7–22%',[99] '15–30%',[98] 'one-third',[71,72] 'at least one-third',[70] '20–50%',[57] '25–50%',[64] approximately one-quarter to one-half'[74] and '25–75%'.[59]

Interestingly, whereas authors agree that MUS as a diagnostic entity 'exists', there is quite some debate about its nature. During a recent workshop of the World Organization of Family Doctors (Wonca), 'almost half (48%) of the audience agreed that the most important problem is that MUS[s] are not clearly defined'.[64] Indeed, many papers struggle with defining MUS, both against 'non-MUS' and against other syndromes (CFS, depression and anxiety).[58–63,65,70,71,74,77,78,83,86,93,96,98,99] In commenting on these problems of definition, Aron and Buchwald[62] state that one of the main problems in diagnosing MUS is that it 'relies heavily on subjective symptoms and typically not on objective clinical or laboratory findings, which are currently sparse'. This view is echoed by Smith and Dwamena[59], who propose to find severe cases of MUS 'through laboratory evaluation to exclude organic disease'. In other words, the proponents of MUS defend the concept as a collection of all that cannot be defined and categorized in medicine and point to the subjectivity of all that patients feel as the root cause of this uncertainty.

Ironically, MUS as a concept does little to reduce diagnostic uncertainty. In fact, the literature seems to indicate that MUS is often considered to be at risk for being 'missed' as a diagnosis. Some studies found that physicians 'miss' the diagnosis at its first presentation[57,59,65,69,94] and noted that 'the under-diagnosis of MUP[S] is similar to the rate of unrecognized psychiatric disorders reported by others'. Furthermore, doctors are criticized both for performing too many physical examinations (whether or not under pressure)[62] and for refraining to perform tests in order to more objectively define cases.[59] Some papers mention a lack of FD training as a factor, associated with inadequate diagnosis and treatment for MUS patients.[57,59]

On this basis, it very well could be concluded that much of this reported diagnostic and therapeutic confusion is due to the fact that entities, which should not be lumped together, were indeed lumped together into a category called MUS that, subsequently, is problematic. This inappropriate categorization of health problems into purely physical (non-MUS) and purely non-physical (i.e. psychological, including MUS and other syndromes) diseases is a 16th century concept, which is an inappropriate reduction in the post-modern world. There is no mind–body dichotomy in the real world. Consequently, the diagnosis of MUS does not cater for complexity and uncertainty in the practice of medicine and is incompatible with the widely recognized biological, social and psychological model of disease.[108,109] In turn, it is in conflict with the holistic approach to the practice of FM included as a core competence of FDs by Wonca.[105]

No doctor could rationally decide at the first presentation that a symptom cannot have a medical explanation and is therefore medically unexplained. Doctors are no clairvoyants, and many diagnostic entities need time and/or tests to be verified or falsified. In many cases, the diagnosis is made on the basis of probabilities based on prior experience or knowledge in turn or through a process of analysis where various hypotheses are made, weighed on the basis of likelihoods (defined on the basis of presenting symptoms, signs and test results) and accepted or rejected again in consideration of probabilities and not certainties.[106]

The idea that patients presenting with MUS share a common latent variable is, to say the least, quite doctor-centred. It implies that medicine should, and can, explain everything with strong degrees of certainty and that patients' suffering necessarily needs a defined medical explanation in order to be legitimized.

Other perspectives on symptoms in the literature

The debate, or even controversy, on how FDs conceptualize patients' presenting symptoms, has involved other authors and differing perspectives.

In a thoughtful essay, Aronowitz describes how patients' sufferings became 'clinical orphans' because of the shift from accepting symptoms as a diagnosis towards recognizing only diagnoses based on physiology or anatomy.[110] In that context, it should be of no surprise that the suffering of people can be only imperfectly matched to a set of 'objective' disease categories. Patients feel what they feel, independent of any medical model.

It is a well-known fact that people quite often suffer from symptoms, for which they may seek care but do not do so to a very large proportion. White *et al.*, in 1962, and Green *et al.*, in 2001, reported surprisingly similar estimates of the proportion of people experiencing symptoms and seeking or not seeking care.[111,112] Over a period of 1 month, 750 and 800, respectively, of 1000 US persons experienced symptoms. Both studies found that ~25% consulted a doctor, indicating that many people decide not to present their symptoms to a medical professional.

However, we found little empirical research on symptoms in FM, despite papers calling for more such research. Although a number of studies used the international standard approach of ICPC and the RfE, a significant proportion (possibly even in growth) continues to reduce symptoms to the super-category MUS. The latter contribute little to further understanding the patient's perspective and the diagnostic process in FM.

RfEs and symptom diagnoses in contrast to MUS

Both authors concur that the RfE and symptom diagnoses are a superior reduction to MUS for understanding the patient's perspective in FM on the basis of the literature reviewed. They are also demonstrably superior in understanding the process of diagnosis in FM.[2,3,9]

Using the reduction, MUS implies that many, or even all, symptoms are medically 'explainable'. In this sense, the concept presents quite an arrogant and doctor-centred point of view, which is not supported by published evidence. Actually, in this context, it is important to understand that most symptoms are medically unexplained. For example, we know that thirst as a symptom can be explained by the presence of diabetes. But not everyone with diabetes is thirsty, not everyone who is thirsty has diabetes, not everyone with sinusitis has a headache, and the disease 'depression' leads some people to gain and others to lose weight. Doctors cannot reliably explain why a duodenal ulcer in one person may present with heartburn alone but in others with complaints such as localized abdominal pain, vomiting, bloating and a lack of appetite. At least in this sense, MUS and complaints are a far larger group than those categorized as such by the exponents of the MUS syndrome.

Why should, or even why would, everything be medically explainable? Why do we feel happy or unhappy? Why do we like salmon (or not)? Why do we fall in (and out of) love? Why do we experience butterflies in our stomach? And what is more: what would we gain if every possible symptom were medically explainable?

The symptom diagnosis as a concept reflects the application of the scientific method to describing the fundamental medical truth that, on the one hand, one complaint often fits more than one diagnosis, and, on the other hand, most diagnoses are based on the presentation of a number of symptoms and complaints that do not necessarily have to all occur simultaneously. The construction of a medical diagnosis represents pathophysiological but also psychological and social factors.[39] A classification which includes symptoms, as well as disorders, as diagnostic labels allows the practitioner to prospectively document health problems as episodes of care developing over time, including modifications in the diagnosis as it becomes more defined. This is clearly an essential requirement for primary care doctors with a responsibility for the large majority of their patients' personal health care needs, including poorly defined problems that defy accurate medical categorization, especially at first presentation, as well as autonomic system dysfunction and functional illnesses that nevertheless cause patient suffering and are perfectly legitimate reasons to seek medical care *per se*.[113] FM needs a system such as ICPC to accurately document all health problems in all stages of development. Often, a problem resolves itself after one encounter with the doctor[1–3] and simply requires reassurance and symptomatic treatment for the cough, headache, back pain, anxiety, abdominal pain, etc. Medicalization of such symptoms is inappropriate and could harm the patient through unnecessary intervention or anxiety.

ICPC does not cater for coding mind–body metaphors and thus does not allow the coding of 'psychosomatic' disease unless this fits strict and well-defined criteria.[4,5] This is the appropriate approach of FDs and psychiatrists to mental problems, fully in line with the definitions and diagnostic method of the Diagnostic Statistical Manual IV (DSM-IV), itself in turn

a standard for diagnosing psychiatric disease.[113] This does not imply that emotions, psychological and social factors are not considered important elements in the development, and individual experience, of somatic complaints. On the contrary, however, as yet there is not an accepted and defined causal pathogenic pathway for this phenomenon, let alone an explanation of why this should happen in some, but not all, patients. Symptoms should thus be accepted at face value and not labelled as 'physical' or 'psychological' or even 'social', although these elements may be contributing to a lesser or greater degree.

Therefore, in that sense, there is no scientific reason to propose the diagnosis of MUS because that would replace well-defined symptom diagnoses, which are not thereby better explained. This new 'umbrella' diagnosis is, in fact, in that same sense not explained either. 'Heartburn' as a symptom diagnosis is no better defined or explained as 'medically unexplained heartburn' and even less so when lumped into a category along with other symptom diagnoses as a label of 'MUS' applied to a patient who suffers from heartburn.

In cases where the diagnostic threshold is reached, the diagnosis of somatization disorder applies and the appropriate management is justified but not by default.[113] In fact, the prediction that most MUS are due to psychosomatic conditions has not only failed to be proven but also has been proven to be untrue. Therefore, the suggestion that such symptoms are psychogenic, found in the introduction of many MUS papers, has been thoroughly researched and found to be incorrect, in the sense that most studies have found that only a small minority of MUS patients fit the diagnostic criteria for somatization disorder.[57,59] Nevertheless, more studies seem to attempt to study the same phenomenon again, as if to find different results and disprove previous research. This is not research in evolution but rather research into a philosophical dead end.

In reviewing the current literature, in fact, it appeared evident that it is highly unlikely that MUS is in any way a homogeneous group. We have shown that the content of international FM is better demonstrated through studying associations between RFEs and diagnoses than it is by studying the incidence and prevalence of disease;[1–3] therefore, any attempt to explain away patients' symptoms through the MUS reduction basically makes FM data more difficult to understand. Years of research into MUS as a clinical entity has failed to produce an international body of knowledge, or an effective clinical approach or method, and has rather failed to support the philosophy on which the reduction itself is based. This literature reports the frustration of doctors with MUS and also reflects the frustration of researchers with defining the concept itself in a clinically useful manner. None of the studies reliably predict outcomes in an individual patient, except for the poor outcomes of persistent frequent attendees.[56–59]

The medical model is an imperfect reduction for the complex doctor–patient encounters which occur in FM. A new model based on a new paradigm is needed, such as the 'biopsychosocial' model. The biological, psychological and social model of illness and disease proposed by Engel is embraced by many FDs as an appropriate model, but it has no place in the MUS philosophy, and this represents a fatal flaw.[108]

As a super-syndrome, neither does MUS fit the medical paradigm. It is an anomaly of the theoretical framework, which can only be addressed by fundamentally changing the medical paradigm itself. Such a paradigm shift has been called for many years and is certainly addressed in many ways by the fundamental concepts within ICPC, such as the RfE and the symptom diagnosis. That model should fully embrace the patient perspective, embrace biological, psychological and social elements in the process of diagnosis and care, represent a real shift to patient-centred care and will surely be consistent with the concepts reflected within ICPC and the RfE. It cannot include inappropriate reductions such as MUS.

Discussion

This review has found two conflicting approaches to the role of symptoms in medicine and especially FM. ICPC contains >200 codes for symptoms and complaints which may be used for coding RfEs empirically as they present to the FD. Additionally, RfEs can be expressed as disease labels and requests for interventions and coded as such. These rubrics appear to greatly enhance the clinical reliability and relevance of patient documentation and play a major role in estimating probabilities for diagnoses in standard sex/age groups.[6–9,11,12] In principle, codes for diagnoses, symptoms and complaints from another coding system such as Read or Snomed could also be used to code RfEs. However, ICPC is a superior tool for this purpose, having been designed for primary care and for coding RfEs.[9]

An important aspect of ICPC is that somatoform autonomic dysfunction and persistent somatoform pain are not diagnosed as such but only in the form of a physical symptom diagnosis without a 'psychogenic' connotation. This avoids the subjective labelling of such symptoms as non-organic by the FD and avoids judgemental and potentially demeaning labels for patients' suffering. It is a scientific approach, based on the biopsychosocial concept of disease and illness. In DSM-IV, unexplained somatic complaints associated with frequent health care visits are also insufficient criteria to formally diagnose somatization disorder.[113] Again, ICPC provides ample potential to code somatic symptom diagnoses as such without the need to diagnose a 'subthreshold' somatization disorder.

Diagnostic labels often have the disadvantage of relative uncertainty, caused by the more-or-less arbitrary

attribution of different symptom and sign clusters to a disease diagnosis (e.g., syndrome diagnoses, psychiatric diagnoses). Symptoms and complaints on the other hand have the advantage of relative certainty since they represent the patient's experience of ill health irrespective of the diagnostic label.

In the daily work of FDs, the importance of the absence or presence of a symptom must be considered in light of the distribution of disease in the family practice setting. Recording the patient's RfE with ICPC makes available data from the diagnostic process in FM. The availability of age-specific prior probabilities of common symptoms and complaints for diagnoses in family practice, therefore, has great potential.[2,3,9] Such data would not only seem to be crucial for the further development of family practice as an academic discipline, and for the design of intervention studies, but also has direct practical consequences for clinicians.

Years of research into MUS have failed to support an international body of knowledge and cannot convincingly support the philosophy on which the reduction itself is based. The study of MUS has also failed to provide insights in diagnostic decisions in FM and therefore has severely limited application in clinical practice.

Conclusions

This review supports the value of researching RfEs without artificial mind–body metaphors, and the related research project shows that diagnostic odds ratios for RfEs in an episode of care are similar between populations in different countries.[2] Applying the medical model strictly, by using the approach defined by the literature on MUS, is shown to be a failing reduction of the domain of FM. As such, a new model based on a
substantial paradigm shift is needed. That model should be the biopsychosocial model and should be based on the philosophical concepts reflected in ICPC, especially the RfE.

There is more to life than medicine may diagnose, and FM should strive to move closer to the world of our patients than the medical model alone would allow.

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References

[1] Soler JK *et al.* Is family medicine an international discipline? An international comparative family medicine study: the Transition project in the Netherlands, Malta and Serbia. Comparing incidence and prevalence across populations. *Fam Pract* 2011, doi:10.1093/fampra/cmr098.
[2] Soler JK *et al.* Is family medicine an international discipline? An international comparative family medicine study: the Transition project in the Netherlands, Malta and Serbia. Comparing diagnostic odds ratios across populations. *Fam Pract* 2011, doi:10.1093/fampra/cmr100.
[3] Okkes IM, Oskam SK, Van Boven K, Lamberts H. EFP. Episodes of care in family practice. Epidemiological data based on the routine use of the International Classification of Primary Care (ICPC) in the Transition Project of the Academic Medical Center/University of Amsterdam. (1985–2003). In: Okkes IM, Oskam SK, Lamberts H (eds). *ICPC in the Amsterdam Transition Project. CD-Rom*, Amsterdam, the Netherlands: Academic Medical Center/University of Amsterdam, Department of Family Medicine, 2005.
[4] Lamberts H, Wood M (eds). ICPC: International Classification of Primary Care. Oxford, UK: Oxford University Press, 1987.
[5] Wonca International Classification Committee. *ICPC-2: International Classification of Primary Care, Second Edition.* Prepared by the International Classification Committee of WONCA (WICC). Oxford, UK: Oxford University Press, 1998.
[6] Lamberts H, Wood M. The birth of the International Classification of Primary Care (ICPC). Serendipity at the border of Lac Léman. *Fam Pract* 2002; **19:** 433–5.
[7] Lamberts H, Wood M, Hofmans-Okkes IM (eds). The International Classification of Primary Care in the European Community. Oxford, UK: Oxford University Press, 1993.
[8] Okkes IM, Lamberts H. Classification and the domain of family practice. In: Jones R (ed). *The Oxford Textbook of Primary Medical Care*, Vol 1. Oxford, UK: Oxford University Press, 2003: 139–52.
[9] Soler JK, Okkes I, Lamberts H, Wood M. The coming of age of ICPC: celebrating the 21st birthday of the International Classification of Primary Care. *Fam Pract* 2008; **25:** 312–7.
[10] Den Boer-Wolters D, Knol MJ, Smulders K, de Wit NJ. Frequent attendance of primary care out-of-hours services in the Netherlands: characteristics of patients and presented morbidity. *Fam Pract* 2010; **27:** 129–34. [Epub 2009 December 23].
[11] Luchins D. The electronic medical record: optimizing human not computer capabilities. *Adm Policy Ment Health* 2010; **37:** 375–8. [Epub 2009 August 7].
[12] Müller-Engelmann M, Krones T, Keller H, Donner-Banzhoff N. Decision making preferences in the medical encounter—a factorial survey design. *BMC Health Serv Res* 2008; **8:** 260.
[13] Eberl MM, Phillips RL Jr, Lamberts H, Okkes I, Mahoney MC. Characterizing breast symptoms in family practice. *Ann Fam Med* 2008; **6:** 528–33.
[14] Gask L, Klinkman M, Fortes S, Dowrick C. Capturing complexity: the case for a new classification system for mental disorders in primary care. *Eur Psychiatry* 2008; **23:** 469–76 [Epub 2008 September 5].
[15] Vainiomäki S, Kuusela M, Vainiomäki P, Rautava P. The quality of electronic patient records in Finnish primary healthcare needs to be improved. *Scand J Prim Health Care* 2008; **26:** 117–22.
[16] Stauffer WM, Rothenberger M. Hearing hoofbeats, thinking zebras: five diseases common among refugees that Minnesota physicians need to know about. *Minn Med* 2007; **90:** 42–6.

[17] Hastings SN, Whitson HE, White HK *et al*. Development and implementation of the TrAC (Tracking After-hours Calls) database: a tool to collect longitudinal data on after-hours telephone calls in long-term care. *J Am Med Dir Assoc* 2007; **8:** 178–82.

[18] Botica MV, Zelić I, Renar IP *et al*. Structure of visits persons with diabetes in Croatian family practice—analysis of reasons for encounter and treatment procedures using the ICPC-2. *Coll Antropol* 2006; **30:** 495–9.

[19] Ruusuvuori J. Comparing homeopathic and general practice consultations: the case of problem presentation. *Commun Med* 2005; **2:** 123–35.

[20] Waldorff FB, Rishøj S, Waldemar G. Identification and diagnostic evaluation of possible dementia in general practice. A prospective study. *Scand J Prim Health Care* 2005; **23:** 221–6.

[21] Schneider A, Körner T, Mehring M *et al*. Impact of age, health locus of control and psychological co-morbidity on patients' preferences for shared decision making in general practice. *Patient Educ Couns* 2006; **61:** 292–8.

[22] Schers H, van den Hoogen H, Bor H, Grol R, van den Bosch W. Familiarity with a GP and patients' evaluations of care. A cross-sectional study. *Fam Pract* 2005; **22:** 15–9. RFE as tool, ICPCEpub 2005 January 7.

[23] Soler JK, Okkes IM. Sick leave certification: an unwelcome administrative burden for the family doctor? The role of sickness certification in Maltese family practice. *Eur J Gen Pract* 2004; **10:** 50–5.

[24] Callahan EJ, Stange KC, Zyzanski SJ *et al*. Physician-elder interaction in community family practice. *J Am Board Fam Pract* 2004; **17:** 19–25.

[25] Tähepold H, Maaroos HI, Kalda R, van den Brink-Muinen A. Structure and duration of consultations in Estonian family practice. *Scand J Prim Health Care* 2003; **21:** 167–70.

[26] Van Os TW, Van den Brink RH, Van der Meer K, Ormel J. The care provided by general practitioners for persistent depression. *Eur Psychiatry* 2006; **21:** 87–92. [Epub 2005 August 31].

[27] Kenter EG, Okkes IM, Oskam SK, Lamberts H. Tiredness in Dutch family practice. Data on patients complaining of and/or diagnosed with "tiredness". *Fam Pract* 2003; **20:** 434–40.

[28] Beaudoin C, Lussier MT, Gagnon RJ, Brouillet MI, Lalande R. Discussion of lifestyle-related issues in family practice during visits with general medical examination as the main reason for encounter: an exploratory study of content and determinants. *Patient Educ Couns* 2001; **45:** 275–84.

[29] Jackson JL, Kroenke K. The effect of unmet expectations among adults presenting with physical symptoms. *Ann Intern Med* 2001; **134:** 889–97.

[30] Katić M, Budak A, Ivanković D *et al*. Patients' views on the professional behaviour of family physicians. *Fam Pract* 2001; **18:** 42–7.

[31] Wilf-Miron R, Glasser S, Sikron F, Barell V. Using a health concerns checklist as a bridge from reason for encounter to diagnosis of girls attending an adolescent health service. *Pediatrics* 2000; **106:** 1065–9.

[32] Blum C, Globe G, Terre L *et al*. Multinational survey of chiropractic patients: reasons for seeking care. *J Can Chiropr Assoc* 2008; **52:** 175–84.

[33] Stalman WA, van Essen GA, van der Graaf Y. Determinants for the course of acute sinusitis in adult general practice patients. *Postgrad Med J* 2001; **77:** 778–82.

[34] Van der Wouden JC, van der Pas P, Baaij D, van Suijlekom-Smit LW. Headache in adolescents in Dutch general practice. *Funct Neurol* 2000; **15 (suppl 3):** 130–6.

[35] Kuyvenhoven MM, Verheij TJ, de Melker RA, van der Velden J. Antimicrobial agents in lower respiratory tract infections in Dutch general practice. *Br J Gen Pract* 2000; **50:** 133–4.

[36] Van der Wouden JC, van der Pas P, Bruijnzeels MA, Brienen JA, van Suijlekom-Smit LW. Headache in children in Dutch general practice. *Cephalalgia* 1999; **19:** 147–50.

[37] De Silva N, Mendis K. One-day general practice morbidity survey in Sri Lanka. *Fam Pract* 1998; **15:** 323–31.

[38] Bourne DE, Hanmer LA, Heavens KJ. Towards developing a national health information standards framework for South Africa. *Int J Med Inform* 1998; **48:** 29–31.

[39] Gulbrandsen P, Fugelli P, Hjortdahl P. Psychosocial problems presented by patients with somatic reasons for encounter: tip of the iceberg? *Fam Pract* 1998; **15:** 1–8.

[40] Britt H, Meza RA, Del Mar C. Methodology of morbidity and treatment data collection in general practice in Australia: a comparison of two methods. *Fam Pract* 1996; **13:** 462–7.

[41] Lamberts H, Hofmans-Okkes I. Episode of care: a core concept in family practice. *J Fam Pract* 1996; **42:** 161–9.

[42] Portegijs PJ, van der Horst FG, Proot IM *et al*. Somatization in frequent attenders of general practice. *Soc Psychiatry Psychiatr Epidemiol* 1996; **31:** 29–37.

[43] De Melker RA, van der Velden J, Kuyvenhoven MM. House calls for respiratory tract infections; family medicine pure and simple? *Fam Pract* 1995; **12:** 294–8.

[44] Lamberts H, Wood M, Hofmans-Okkes IM. International primary care classifications: the effect of fifteen years of evolution. *Fam Pract* 1992; **9:** 330–9.

[45] Verhaak PF, Tijhuis MA. Psychosocial problems in primary care: some results from the Dutch National Study of Morbidity and Interventions in General Practice. *Soc Sci Med* 1992; **35:** 105–10.

[46] Van der Horst F, Metsemakers J, Vissers F, Saenger G, de Geus C. The reason-for-encounter mode of the ICPC: reliable, adequate, and feasible. *Scand J Prim Health Care* 1989; **7:** 99–103.

[47] Nylenna M, Bruusgaard D. Symptomatic and non-symptomatic reasons for encounter in general practice. *Scand J Prim Health Care* 1987; **5:** 221–4.

[48] Bentsen BG. International classification of primary care. *Scand J Prim Health Care* 1986; **4:** 43–50.

[49] Nylenna M. Why do our patients see us? A study of reasons for encounter in general practice. *Scand J Prim Health Care* 1985; **3:** 155–62.

[50] Lamberts H, Meads S, Wood M. Results of the international field trial with the Reason for Encounter Classification. *Soz Praventivmed* 1985; **30:** 80–7.

[51] Lamberts H, Meads S, Wood M. Classification of reasons why persons seek primary care: pilot study of a new system. *Public Health Rep* 1984; **99:** 597–605.

[52] Okkes IM, Polderman GO, Fryer GE *et al*. The role of family practice in different health care systems. A comparison of reasons for encounter, diagnoses, and interventions in primary care populations in the Netherlands, Japan, Poland, and the United States. *J Fam Pract* 2002; **51:** 72.

[53] Donaldson MS, Yordy KD, Lohr KN, Vanselow NA (eds). Primary Care. America's Health in a new Era. The Institute of Medicine Committee on the Future of Primary Care. Washington, DC: Institute of Medicine, 1995.

[54] De Lusignan S, Van Weel C. The use of routinely collected computer data for research in primary care: opportunities and challenges. *Fam Pract* 2006; **23:** 253–63.

[55] Okkes IM, Oskam SK, Lamberts H. The probability of specific diagnoses for patients presenting with common symptoms to Dutch family physicians. *J Fam Pract* 2002; **51:** 31–6.

[56] Fink P, Rosendal M. Recent developments in the understanding and management of functional somatic symptoms in primary care. *Curr Opin Psychiatry* 2008; **21:** 182–8.

[57] Olde Hartman TC, Borghuis MS, Lucassen PLBJ *et al*. Medically unexplained symptoms, somatisation disorder and hypochondriasis: course and prognosis. A systematic review. *J Psychosom Res* 2009; **66:** 363–77.

[58] Burton C. Beyond somatisation: a review of the understanding and treatment of medically unexplained physical symptoms (MUPS). *Br J Gen Pract* 2003; **53:** 2333–41.

[59] Smith RC, Dwamena FC. Classification and diagnosis of patients with medically unexplained symptoms. *J Gen Intern Med* 2007; **22:** 685–91.

[60] Deary IJ. A taxonomy of medically unexplained symptoms. *J Psychosom Res* 1999; **47:** 51–9.

[61] Wessely S, Nimnuan C, Sharpe M. Functional somatic syndromes: one or many? *Lancet* 1999; **354:** 936–40.

[62] Aron LA, Buchwald DA. A review of the evidence of the overlap among unexplained clinical conditions. *Ann Intern Med* 2001; **134:** 868–81.

[63] Sharpe M, Carson A. 'Unexplained' somatic symptoms, functional syndromes, and somatisation: do we need a paradigm shift? *Ann Intern Med* 2001; **134:** 926–30.

[64] Olde Hartman TC, Hassink-Franke LJA, Dowrick C *et al*. Medically unexplained symptoms in family medicine: defining a research agenda. Proceedings from Wonca 2007. *Fam Pract* 2008; **25:** 266–71.

[65] Kappen T, Van Dulmen S. General practitioners' responses to the initial presentation of medically unexplained symptoms: a quantitative analysis. *Biopsychosoc Med* 2008; **2:** 22.

[66] Dirkzwager AJE, Verhaak PFM. Patients with persistent unexplained symptoms in general practice: characteristics and quality of care. *BMC Fam Pract* 2007; **8:** 33.

[67] Bensing JM, Verhaak PFM. Somatisation: a joint responsibility of doctor and patient. *Lancet* 2006; **367:** 452–3.

[68] Verhaak PFM, Meijer SA, Visser AP, Wolters G. Persistent presentation of medically unexplained symptoms in general practice. *Fam Pract* 2006; **23:** 414–20.

[69] Salmon P, Humphris GM, Ring A, Davies JC, Dowrick CF. Why do primary care physicians propose medical care to patients with medically unexplained symptoms? A new method of sequence analysis to test theories of patient pressure. *Psychosom Med* 2006; **68:** 570–7.

[70] Kroenke K. Studying symptoms: sampling and measurement issues. *Ann Intern Med* 2001; **134:** 844–53.

[71] Jackson JL, George S, Hinchey S. Medically unexplained physical symptoms [Editorial]. *J Gen Intern Med* 2009; **24:** 540–2.

[72] Walker J, Sharpe M, Wessely S. Commentary: symptoms not associated with disease: an unmet public health challenge. *Int J Epidem* 2006; **35:** 477–8.

[73] Koch H, Van Bokhoven MA, Ter Riet G *et al*. Demographic characteristics and quality of life of patients with unexplained complaints: a descriptive study in general practice. *Qual Life Res* 2007; **16:** 1483–9.

[74] McFarlane AC, Ellis N, Barton C, Browne D, Van Hoof M. The conundrum of medically unexplained symptoms: questions to consider. *Psychosomatics* 2008; **49:** 369–77.

[75] Rief W, Broadbent E. Explaining medically unexplained symptom-models and mechanisms. *Clin Psych Rev* 2007; **27:** 821–41.

[76] Dwamena FC, Lyles JS, Frankel RM, Smith RC. In their own words: qualitative study of high-utilising primary care patients with medically unexplained symptoms. *BMC Fam Pract* 2009; **21:** 67.

[77] Risør MB. Illness explanations among patients with medically unexplained symptoms: different idioms for different contexts. *Health (London)* 2009; **13:** 505–21.

[78] Smith BJ, McGorm KJ, Weller D, Burton C, Sharpe M. The identification in primary care of patients who have been repeatedly referred to hospital for medically unexplained symptoms: a pilot study. *J Psychosom Res* 2009; **67:** 207–11 [Epub 2009 March 3].

[79] Salmon P, Ring A, Humphris GM, Davies JC, Dowrick CF. Primary care consultations about medically unexplained symptoms: how do patients indicate what they want? *J Gen Intern Med* 2009; **24:** 450–6 [Epub 2009 January 23].

[80] Peters S, Rogers A, Salmon P *et al*. What do patients choose to tell their doctors? Qualitative analysis of potential barriers to reattributing medically unexplained symptoms. *J Gen Intern Med* 2009; **24:** 443–9. [Epub 2008 December 17].

[81] Duddu V, Husain N, Dickens C. Medically unexplained presentations and quality of life: a study of a predominantly South Asian primary care population in England. *J Psychosom Res* 2008; **65:** 311–7 [Epub 2008 August 28].

[82] Aiarzaguena JM, Grandes G, Salazar A, Gaminde I, Sánchez A. The diagnostic challenges presented by patients with medically unexplained symptoms in general practice. *Scand J Prim Health Care* 2008; **26:** 99–105.

[83] Williams N, Wilkinson C, Stott N, Menkes DB. Functional illness in primary care: dysfunction versus disease. *BMC Fam Pract* 2008; **9:** 30.

[84] Salmon P, Humphris GM, Ring A, Davies JC, Dowrick CF. Primary care consultations about medically unexplained symptoms: patient presentations and doctor responses that influence the probability of somatic intervention. *Psychosom Med* 2007; **69:** 571–7 [Epub 2007 July 16].

[85] Schur EA, Afari N, Furberg H *et al*. Feeling bad in more ways than one: comorbidity patterns of medically unexplained and psychiatric conditions. *J Gen Intern Med* 2007; **22:** 818–21.

[86] Fink P, Toft T, Hansen MS, Ørnbøl E, Olesen F. Symptoms and syndromes of bodily distress: an exploratory study of 978 internal medical, neurological, and primary care patients. *Psychosom Med* 2007; **69:** 30–9.

[87] Anderson B. Reassurance: medically unexplained physical symptoms. *PLoS Med* 2006; **3:** e541No abstract available.

[88] Persaud R. Patients do not demand and doctors do not misunderstand–how medically unexplained symptoms become medicalized. [Letter] *Psychosom Med* 2006; **68:** 993.

[89] Arnold IA, de Waal MW, Eekhof JA, van Hemert AM. Somatoform disorder in primary care: course and the need for cognitive-behavioral treatment. *Psychosomatics* 2006; **47:** 498–503.

[90] Interian A, Allen LA, Gara MA, Escobar JI, Díaz-Martínez AM. Somatic complaints in primary care: further examining the validity of the Patient Health Questionnaire (PHQ-15). *Psychosomatics* 2006; **47:** 392–8.

[91] Escobar JI, Interian A, Díaz-Martínez A, Gara M. Idiopathic physical symptoms: a common manifestation of psychiatric disorders in primary care. *CNS Spectr* 2006; **11:** 201–10.

[92] Greer J, Halgin R. Predictors of physician-patient agreement on symptom etiology in primary care. *Psychosom Med* 2006; **68:** 277–82.

[93] Salmon P, Ring A, Dowrick CF, Humphris GM. What do general practice patients want when they present medically unexplained symptoms, and why do their doctors feel pressurized? *J Psychosom Res* 2005; **59:** 255–60;discussion 261–2.

[94] Ring A, Dowrick CF, Humphris GM, Davies J, Salmon P. The somatising effect of clinical consultation: what patients and doctors say and do not say when patients present medically unexplained physical symptoms. *Soc Sci Med* 2005; **61:** 1505–15.

[95] Smith RC, Gardiner JC, Lyles JS *et al*. Exploration of DSM-IV criteria in primary care patients with medically unexplained symptoms. *Psychosom Med* 2005; **67:** 123–9.

[96] Kirmayer LJ, Groleau D, Looper KJ, Dao MD. Explaining medically unexplained symptoms. *Can J Psychiatry* 2004; **49:** 663–72.

[97] Stanley IM, Peters S, Salmon P. A primary care perspective on prevailing assumptions about persistent medically unexplained physical symptoms. *Int J Psychiatry Med* 2002; **32:** 125–40.

[98] Escobar JI, Hoyos-Nervi C, Gara M. Medically unexplained physical symptoms in medical practice: a psychiatric perspective. *Environ Health Perspect* 2002; **110 (suppl 4):** 631–6.

[99] Feder A, Olfson M, Gameroff M *et al*. Medically unexplained symptoms in an urban general medicine practice. *Psychosomatics* 2001; **42:** 261–8.

[100] Peveler R, Kilkenny L, Knimonth AL. Medically unexplained physical symptoms in primary care: a comparison of self-report screening questionnaires and clinical opinion. *J Psychosom Res* 1997; **58 (suppl 3):** 34–8;discussion 39–40.

[101] Katon WJ, Walker EA. Medically unexplained symptoms in primary care. *J Clin Psychiatry* 1998; **59 (suppl 20):** 15–21.

[102] Gara MA, Silver RC, Escobar JI, Holman A, Waitzkin H. A hierarchical classes analysis (HICLAS) of primary care patients with medically unexplained somatic symptoms. *Psychiatry Res* 1998; **81:** 77–86.

[103] Walker EA, Unützer J, Katon WJ. Understanding and caring for the distressed patient with multiple medically unexplained symptoms. *J Am Board Fam Pract* 1998; **11:** 347–56.

[104] Escobar JI, Waitzkin H, Silver RC, Gara M, Holman A. Abridged somatization: a study in primary care. *Psychosom Med* 1998; **60:** 466–72.

[105] Heyrman J (ed). European Academy of Teachers in General Practice (EURACT). The EURACT Educational Agenda of

General Practice/Family Medicine. 2005. http://www.euract.org/pdf/agenda.pdf (accessed on 1 November 2009).

[106] Knottnerus JA, Buntinx F (eds). The Evidence Base of Clinical Diagnosis. Theory and Methods of Diagnostic Research, 2nd edn. Oxford, UK: John Wiley & Sons Ltd, 2009.

[107] Cohen O, Kahan E, Zalewski S, Kitai E. Medical investigations requested by patients: how do primary care physicians react? *Fam Med* 1999; **31:** 426–31.

[108] Engel GL. From biomedical to biopsychosocial: being scientific in the human domain. *Psychosomatics* 1997; **38:** 521–8.

[109] White K. *The Task of Medicine. Dialogue at Wickenburg.* CA: Henry J. Kaiser Foundation, 1988.

[110] Aronowitz RA. When do symptoms become a disease? *Ann Intern Med* 2001; **134:** 803–8.

[111] Green LA, Fryer GE, Yawn BP, Lanier D, Dovey SM. The ecology of medical care revisited. *N Engl J Med* 2001; **344:** 2021–6.

[112] White K, Williams TF, Greenberg BG. The ecology of medical care. *N Engl J Med* 1961; **265:** 885–92.

[113] DSM- IV. *Diagnostic and Statistical Manual of Mental Disorders*, 4th edn. Washington, DC: American Psychiatric Association, 1995.